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FACTORS
WHICH TEND TO CAUSE FLUCTUATIONS IN THE PRICE OF LIVE HOGS AND PORK PRODUCTS

BY

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B. S. University of Illinois, 1921

THESIS

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July 8 1922.

I HEREBY RECOMMEND THAT THE THESIS PREPARED UNDER MY

SUPERVISION BY ALVA WILFRED CRAVER

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____________________	Final Examination*

*Required for doctor's degree but not for master's

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Prefatory Note.

This thesis reports the results of an inquiry into the factors which cause fluctuations in the price of hogs. The study was confined to hog prices it was believed that such a study offered more promise of intelligent analysis than similar studies on any other class of livestock. Moreover, the author believes that the results of this study may throw considerable light on the nature and causes of fluctuations in prices of other classes of livestock. The author does not offer this work as a solution to the livestock marketing problem, but he realizes that a clear understanding of the factors underlying price-fluctuations is a necessary prerequisite to any intelligent solution of the problem. Therefore, the results of this study are offered with the hope that they may prove a contribution to the subject and stimulate further study along these lines.

Realizing a vast store of information available, the author sought only the most representative of its particular class, in the form of: a daily livestock paper (Chicago Daily Drovers' Journal), the highest class weekly Agricultural periodicals (Breeders' Gazette - Wallaces' Farmer), and yearbooks of the United States Department of Agriculture, Drovers' Journal, Price Current Grain Reporter, Board of Trade, and the Packers. That the author might be benefited by personal contact with some of the most intelligent minds along livestock lines, six weeks were spent at the Chicago stockyards

Prefatory Note (Cont).

visiting, conferring, and studying with the most representative and best informed men in their particular line of work.

The author wishes to express his sincere appreciation of assistance from the following persons who have largely been responsible in making this thesis possible: Dean H. W. Mumford, Professor H. P. Rusk, Professor Sleeter Bull, Professor J. B. Rice, Mr. D. B. Waldie, Mr. C. C. Meyer, Mr. A. W. Thompson, Mr. M. F. Horine (the Stockyards statistician), Mr. J. E. Poole (market reporter for the Livestock Exchange and the Breeders' Gazette), Mr. C. L. Harlan, Mr. Gilbert Gusler (Agricultural News Service), Major E. N. Wentworth of Armour & Company, Dr. L. D. H. Weld, Mr. Guy C. Smith, Mr. Russel of Swift & Company, and especially Mr. A. T. Kearney (of the same company) who was so patient and kind in offering constructive criticisms and suggestions.

Alva H. Craver

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BIBLIOGRAPHY.

Author	Subject.
Hall, Louis D.	Federal Supervision of Markets.
Fairall, Hebert S.	From Iowa To Chicago On A Live Stock Train.
Plumb, Chas. S.	Types And Breeds Of Farm Animals.
Warner, W. F.	Pork And Beef.
Dawson, H. C.	The Hog Book.
Huebner	Agricultural Commerce.
Taylor, H. C.	" Economics.
Smart, William	The Theory Of Value.
Armour, J. O.	The Packers.
Weld, L. D. H.	The Marketing Of Farm Products.
Macklin, T.	Efficient Marketing For Agriculture.
Hastings, Frank S.	A Ranchman's Recollections.
Henry and Morrison	Feeds and Feeding.
Pearse, A. W.	The World's Meat Future.
Shanahan	Animal Foodstuffs.
Pearl, Raymond	The Nation's Food.
Mitchell, W. C.	Business Cycles.

Subject of Article.	Author.
Government Market Reports on Livestock and Meats..	James Atkinson.
Livestock Marketing Plan of the Committee of Fifteen.	
The Meat Situation In The United States . . .	U.S. Dept. of Agr. (Report 113)
What The Retailer Does With The Consumer's Dollar..	Wisconsin Bul. 324.
Armour's Handbook of Agriculture	Armour & Company.
Seeing Armour's Packing Plant.	" " "
Monthly Letters To Stockmen	" " "
Influences Which Tend To Stabilize Livestock Prices	" " "
Progressive Beef Cattle Raising.	" " "
" Hog Raising.	" " "
A Study of Market Classes and Grades of Livestock	Gilbert Gusler.
Cost of Marketing Hogs	H. F. Attebery.
Marketing A Load Of Hogs	W. R. Jones.

BIBLIOGRAPHY-Cont.

Subject of Article.	Author.
When Should The Farmer Market His Pigs?	Breeders' Gazette. November 11, 1920.
The Fat Hog From Farm To Packing House	H. N. Ingewersen .
When Piggy Goes To Market	J. M. Carroll.
Fitting and Grading of Swine.	G. E. Day
The Cooperative Shipping Of Hogs. (Breeders' Gazette - Nov., 3, 1921)	James E. Poole.
When Shall We Sell The 1920 Corn Crop (Prairie Farmer - March 1921)	" " "
The Commercial Stock Trade In 1922. (Breeders' Gazette - Jan., 5, 1922)	" " "
Raise Hogs and Pay Your Debts (Breeders' Gazette - Nov., 24, 1921)	" " "
Are Livestock Values Declining (Orange-Judd Farmer - Jan., 24, 1920)	B. W. Snow.
Chicago Daily Drovers' Journal Yearbooks for 1920-21.	
United States Department of Agriculture Yearbook for 1920.	
Union Stock Yard & Transit Company's Report for 1920.	
The Thoroughbred	Judge V. H. Stone.
Report Of The Federal Trade Commission On The Wholesale Marketing Of Food.	
Report Of The Federal Trade Commission On The Meat-Packing Industry - 1919.	
Beef, Pork, and Mutton Types (Breeders' Gazette - Jan., 26, 1922)	Paul H. Caldwell.
Handling and Shipping Stock Pigs	Charles Dawson.
Economic Use Of Meat In The Home.	Farmers' Bul. 391
Market Classes and Grades of Meat.	U. of I. Bul. 147.
Swift & Company Yearbooks 1920-21-22.	
Studies in Live Stock Marketing.	Swift & Company.
Statistical Information	" " "
Livestock Zoning	" " "
Geographic Influences In Marketing Illustrated By The Meat Industry (Guy C. Smith)	Swift & Company.
Joint Cost In The Packing Industry	" " "
Hogs In Kansas	Kansas State Board of Agriculture.
Meat Permanent in the Nation's Diet	Dr. C. W. McCampbell.
United States Census Report For 1920.	
Danish Bacon Displaces American Product on British Markets.	E. C. Squire.

FACTORS
WHICH TEND TO CAUSE FLUCTUATIONS
IN THE PRICE OF LIVE HOGS AND PORK PRODUCTS.

I - HOW THE HOG MARKET OPERATES.

Hogs As Market Animals.

During the last few years more interest has been shown in the marketing of live stock by the producer than ever before. This may be attributed mainly to the higher cost of production including rising land values, higher labor costs, and higher cost of feeds. These factors are making it necessary that agriculture be henceforth a more scientific pursuit, in which the cost of production, as well as the quantity and quality of the product, be considered, and the farm made to produce at its full capacity. There is probably no other class of live stock that offers greater returns from the investment than hogs, but the hog business is just like any other department of productive agriculture, in that eventually all of its branches converge into one ending - the finished product. Much can be done in the care and feeding of hogs for market to cut down the cost of production, but all this careful watching and saving of weeks and months may be lost in one day by striking a poor market. This can not

always be avoided, but many times a goodly amount can either be saved or made when market conditions are given a careful and thorough consideration. It is the purpose of the author to try to show some of the main features of the hog market, and some of the economic factors that cause fluctuations in the price of live hogs and pork products.

That the hog holds an important position in the live stock industry of the United States, is true without doubt. It ranks high in the estimation of both producer and consumer. There are a few, if any, farm animals that can convert so economically and so profitably the grain crops of the farm into finished products of high quality as the hog. The bulk of the world's pork is produced in the cornbelt. The big markets are naturally near the great producing regions. The one outstanding market is the Chicago market which is the basic point not only for hog prices but for all prices of live stock, thus Chicago was taken as the basis for this study. Based on Chicago prices the approximate market value of cattle, hogs, and sheep in any part of the United States may be ascertained. That Chicago leads both in numbers of hogs received and slaughtered is brought out in the following figures for the year 1921:

Market.	Receipts.	Slaughter.
Chicago	8,147,646	5,977,213
E. St. Louis	3,330,051	1,288,730
Indianapolis	2,694,705	1,376,543
Omaha	2,665,276	1,790,545
Kansas City	2,504,556	1,712,843

Estimated Annual Production, Exports, Imports, And Consumption Of Pork In The United States.

	Slaughter.			Ex-	Imports (Less re-exports)	Consumption.	
	Total Million Pounds.	Federally Inspected Million Pounds.	Other Million Pounds.		Million Pounds.	Total	Per Capita Pounds.
1907	7,491	4,420	3,071	1,014	--	6,477	74.1
1908	8,226	4,853	3,373	619	--	7,607	85.4
1909	6,690	3,946	2,744	472	--	6,218	68.6
1910	5,881	3,470	2,411	313	--	5,568	60.3
1911	7,511	4,481	3,080	456	--	7,055	75.1
1912	7,189	4,242	2,947	440	--	6,749	70.6
1913	7,492	4,420	3,072	456	3	7,039	72.5
1914	7,228	4,264	2,964	377	38	6,889	69.9
1915	8,050	4,749	3,801	906	7	7,151	72.0
1916	8,634	5,196	3,448	1,011	2	7,625	75.7
1917	6,901	4,071	2,830	943	10	5,968	58.4
1918	8,854	5,551	3,303	1,724	97	7,227	69.8
1919	8,933	5,584	3,349	1,897	11	7,047	67.1
1920	8,193	5,133	3,060	925	6	7,338	68.9
1921	8,475	5,351	3,124	748	1	7,851	72.8

Estimated Annual Production, Exports, Imports, And Consumption Of Lard In The United States.

1907	1,693	993	690	589	--	1,094	12.5
1908	1,834	1,094	760	582	--	1,272	14.3
1909	1,506	888	618	458	--	1,048	11.6
1910	1,344	793	551	379	--	965	10.5
1911	1,717	1,013	704	605	--	1,112	11.8
1912	1,643	969	674	553	--	1,090	11.4
1913	1,713	1,011	702	575	--	1,138	11.7
1914	1,652	975	677	460	--	1,192	12.1
1915	1,840	1,086	754	487	--	1,353	13.6
1916	1,973	1,164	809	454	--	1,519	15.1
1917	1,577	930	647	538	--	1,194	11.7
1918	2,015	1,263	752	555	--	1,460	14.1
1919	2,089	1,327	762	784	--	1,305	12.4
1920	2,022	1,326	696	636	--	1,390	13.1
1921	2,095	1,384	711	893	--	1,214	11.3

--

Figures from U.S.Dept. of Animal Industry.

The Arrival Of Hogs.

Hogs are shipped into the Chicago yards in either single or double decked cars. These cars are usually of two sizes, namely:

Length of car.	Hogs per deck.	Minimum Wt. of Carlot.
36' 7"	75	17,000 lbs.
40' 7"	85	19,000 lbs.

The double decker car has a second floor extending over the first at a height of about 3½ feet, and the minimum capacity of the double decked cars is from 22,000 to 24,000 pounds. These cars come into the yards in trains ranging from ten to fifty cars. The Chicago Junction Railway, which owns about 296 miles of main tracks and switches, makes up these trains at the terminal points of main line railways in or near Chicago, and hauls them to the unloading platforms commonly called docks. There are over four miles of these docks that connect the cars with 625 chutes. The arrangements are so complete that a whole train of 40 or 50 cars may be unloaded by efficient unloading crews within 15 minutes, it requiring but two minutes to unload each car. As each car is unloaded, a record is made of the number of animals as they enter the chutes, and another record is made when they are driven from the unloading pens. These records include the names of the consignor and consignee, the numbers of the cars and chutes, and any other data necessary to identify the stock.

Adjacent to the docks is a large brick office of the

Chicago Junction Railway which is known among the yardmen as the "dog-house". Here the yardmen of the commission companies gather early in the morning to await the arrival of stock consigned to their respective firms. No producer is compelled to consign his stock to a commission firm; but most producers market their stock in this manner. As a rule commission men are excellent judges of both the market and of live stock values. Practically all the live stock arriving at Chicago is consigned to commission companies.

As soon as a train pulls in an employee of the railway company reads off a list of the cars, stating in the following order: the commission firm, the shipper, the car number, and the species of hogs. Later, these same lists are posted along the wall of the waiting room of the "dog-house". By reading off the lists in this manner, the yardmen representing the various commission firms can note the stock shipped to them, get possession of them almost as soon as they are unloaded, and then drive them over to the sales pens.

The Receiving Pens.

The pens where the hogs are placed on sale are located close to the unloading platforms, and the hogs do not have far to travel to the pens of the commission firm to which they have been consigned. Each commission firm has pens reserved for it by the Stockyards Company. The number of pens each is allowed depends upon its volume of business. First the hogs are yarded; then they are fed and watered in

order to put them in a healthy condition for the sale. As a rule, hogs are not sorted into bunches of different grades as are other classes of live stock, but if in a load, a few come that attract considerable attention, they are usually taken out and sold separately.

United States Inspection Service.

Soon after the hogs reach the sale pens Government inspectors make an ante-morten examination. Any animals showing symptoms of disease or disabled condition are tagged "U. S. Suspect" and are set apart for a more detailed examination. After killing, the hog carcass is inspected by trained veterinarians who with an industrious knife slash into the glands of the head and neck and into the viscera in search for symptoms of tuberculosis or other disease. If the carcass indicates disease, a "U. S. Retained" tag sends it to the retaining room where it is further inspected. If the carcass is free from disease, it passes along the trolley line until it receives the final brand of "U. S. Inspected and Passed".

Government inspectors take absolute control of all diseased carcasses. These condemned carcasses are thrown into a tank in the form of an upright cylinder, 16 feet deep and 6 feet in diameter. Kerosene oil is poured on this condemned meat in such quantities as to effectively eliminate any possibility of it ever being offered for sale as human food. This tank is sealed by the inspector, steam is turned on and

the contents are cooked for eight hours at a temperature of 280 degrees Fahrenheit. The product is turned back to the packer who usually disposes of it in the form of soap grease and fertilizer material. In this and many other ways Government inspection service insures the public, meat that is wholesome and free from disease.

Market Classes Of Hogs.

The market classes of hogs are based more on weight than is the case with any other kind of live stock. The standard market classes of hogs as recently adopted by the United States Bureau of Markets to be used at all central markets is as follows:

A - Killing Classes:

I - Butcher and Bacon Hogs:

1 - Heavy Weight (250 pounds and up)
Choice, Good, and Medium.
2 - Medium Weight (200-250 Pounds)
Choice, Good, Medium, and Common.
3 - Light Weight (150-200 pounds)
Choice, Good, Medium, and Common.
4 - Light Light (130-150 pounds)
Choice, Good, Medium, and Common.

II - Pigs:

1 - Pigs (130 pounds and under)
Choice, Good, Medium, and Common.

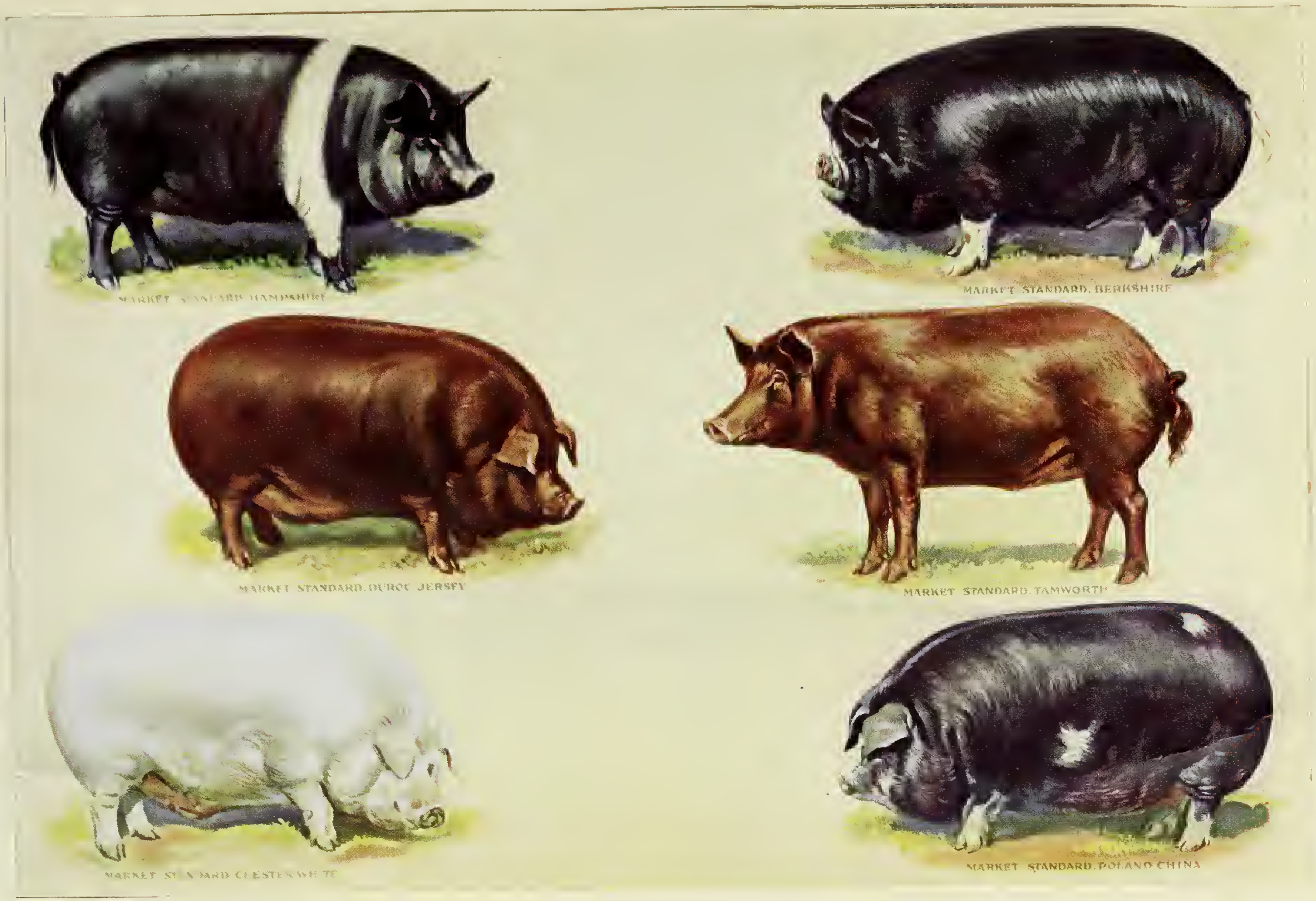
III - Packing Sows:
Smooth and Rough.

IV - Boars.

V - Stags.

B - Stocker and Feeder Pigs:

1 - Heavy Weight (100-130 pounds)
Choice, Good, Medium, and Common.


MARKET STANDARD HAMPSHIRE
MARKET STANDARD, BERKSHIRE
MARKET STANDARD, DUROC JERSEY
MARKET STANDARD, TAMWORTH
MARKET STANDARD CHESTER WHITE
MARKET STANDARD, POLAND CHINA

(Courtesy of Armour & Company)

2 - Medium Weight (70-100 pounds)
  Choice, Good, Medium, and Common.
3 - Light Weight (70 pounds and under)
  Choice, Good, Medium, and Common.

Buyers.

There are five classes of hog buyers on the market, namely: (1) Buyers for the local packing-houses, (2) order buyers for the eastern packing-houses, (3) buyers for export, (4) speculative buyers, and (5) stocker and feeder buyers. The stocker and feeder buyers are not very active on the market for very few hogs are bought to be shipped back to the farm, because of the fact that there is too much danger of infection with hog cholera, tuberculosis, and other destructive hog diseases. The speculative and packer buyers are the most representative on the hog market. Speculators make most of their profit by buying uneven bunches, sorting these so they meet the demand of the local packer and eastern order buyer, and selling to the best bidder.

The buyers usually come out on the market about 8:30 in the morning, and after walking around to see what is being offered, they begin to submit their bids. There are several unwritten laws that govern the action of both commission men and buyers during the hours of trading. One buyer will never enter the alley of a commission man when he sees that another buyer is trading with him. Any bid while trading is good until the buyer leaves the alley or pens of the commission company. The commission man will never sell stock for 5¢ per cwt., over a buyer's bid, for he must be offered at

least 10¢ per cwt., more. The daily market closes at 3 o'clock in the afternoon and no trading transaction can be started after that time; however, if a sale is in progress, it may be continued until a conclusion is reached.

"Word Of Honor" Sales.

After a sale is completed there is no written agreement which goes on with the transaction and no signatures are required, for the sales are conducted entirely on the buyer's and seller's "word of honor". Transactions running into thousands of dollars in single sales are often closed at the mere dropping of a whip, a nod, or some other mute sign of acceptance. After the hogs are sold, they are then weighed and it is here that the Stockyards Company plays an important part. The weighing is the climax of the entire transaction, for it is the records of the weighmaster that determines how much money shall pass from the buyer to the seller, and finally remitted to the shipper of the stock. At the scales is where the delivery of the animals is made.

The Weighing.

There are twenty-five live stock scales in the yards and all are operated under the same weighing system. At each scale there is a weighmaster, a "counter-off", a key-man, and a yardman. The hogs are driven on the scale by the employees of the commission firm. The weighmaster weighs them, recording their weights along with the names of the buyer and seller, the number of head, and the class of hogs.

The form of records used by the weighmaster produces at one writing four original and their fac-simile impressions which later form the basis of nearly all the accounts growing out of the business. The "counter-off" at a signal from the weighmaster counts the number of head and reports the number to the weighmaster thru a tube provided for this purpose. The "counter-off" then makes out a yard card on which is recorded the names of the buyer and seller, number of head, and the number of the pen in which they are to be yarded. The yardman then drives the hogs to the particular pen and locks them in.

Hogs that are purchased for shipment are taken from the pens to the docks, loaded into cars and started towards their destination. Hogs that are purchased by the local packers are gathered together by "drivers" employed by the packing firm, and are carefully driven over the viaducts to the packing-house. Each packing firm has its own system about driving the hogs to the packing-house. One firm may permit several bunches to be thrown together to make one big "drive", while another firm may keep the bunches separate in order to keep a check on the individual ability of its buyers. After the hogs are sold, the commission company deducts from the selling price the expenses connected with the sale, and remits the balance to the shipper of the hogs. The expenses connected with the sale are as follows: freight to Chicago, a terminal railway charge, fire insurance, yardage, cost of feed and inspection, and the firm's commission for selling

the stock.

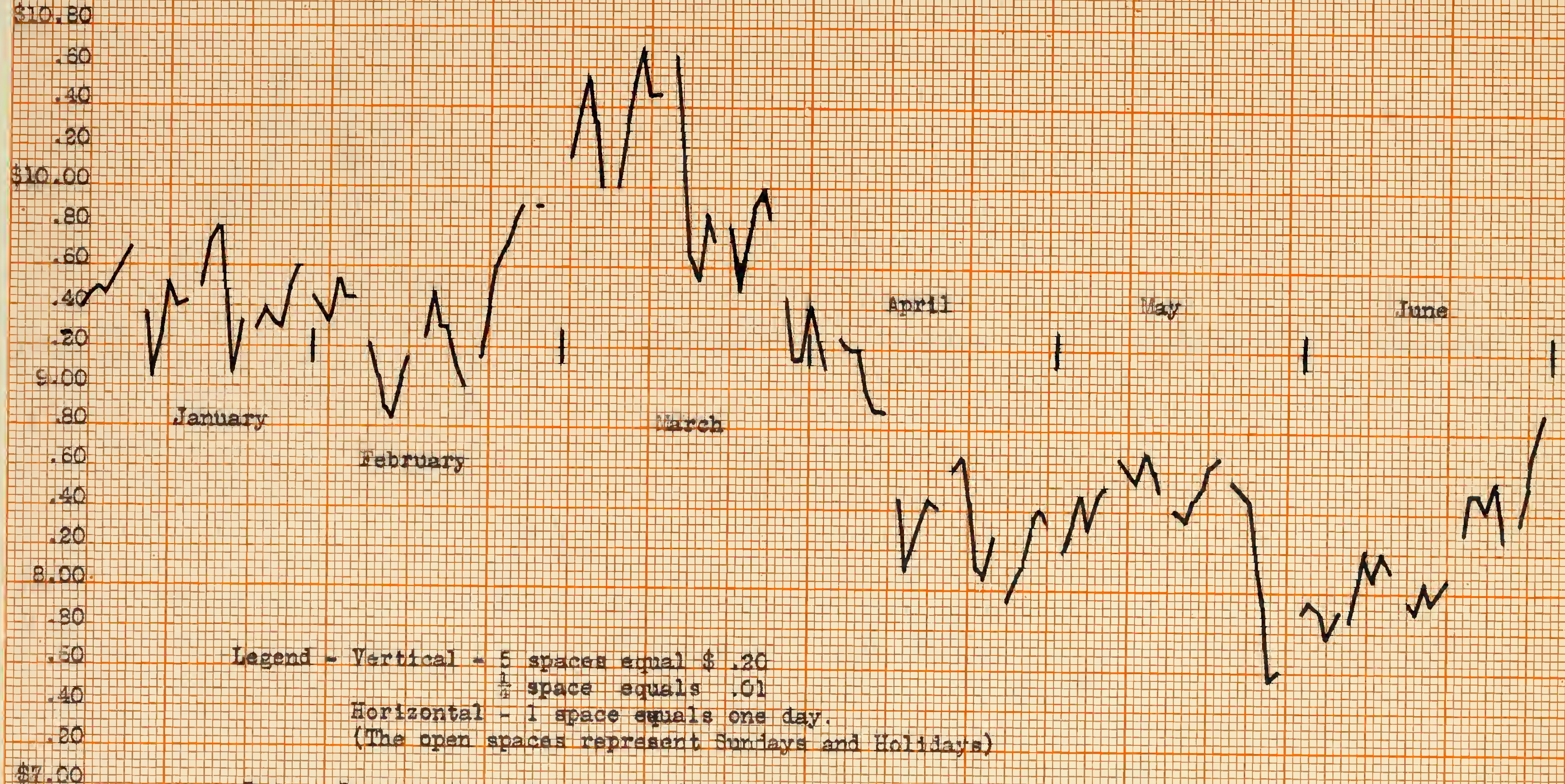
Federal Supervision.

Federal supervision of the stockyards and live stock dealers began June 18, 1918, and is conducted by the Bureau of Markets under the direction of the Secretary of Agriculture. One hundred twenty-one licensed stockyards were placed under the supervision of the officers at the twenty-six central markets in whose respective districts they were located. Adequate facilities for a quick, decisive live stock service have been instituted at every stockyard in the form of scales, pens, and chutes; cleaning of dirty pens has been made obligatory; arrangements for loading, unloading, and moving stock thru the yards have been improved and additional yardmen have been employed; terminal railroads have been required to furnish faster service, thus eliminating a large amount of delay and shrinkage; unsuitable feed has been rejected; more accurate checks on weights of feed have been provided, and feed charges have been reduced in some cases at the instance of the market supervisors. Weather conditions, crop statistics, and market price quotations are sent to ten million readers in such forms as: government weekly market bulletins, mimeograph reports sent to the producer direct, the daily newspapers, the commercial news service of the telegraph companies, and wireless reports.

II - THE FACTOR OF DEMAND.

The cause for fluctuations in the price of live hogs and pork products is a problem which deserves careful and diligent study. The value of a product to a producer is determined (considering the long period of time) by cost of production plus a just rate of profit, but the price that a commodity will realize on the market is the price that a buyer will pay for that commodity at that particular time. At the market the farmer 'gets what he can'. This is somewhat unfair to the farmer for the production of foodstuffs is of primary importance to the consuming public, whereas on the basis of the existing marketing system the will of the consuming public is made the primary factor in rewarding the farmer for these essential products. In practically all other lines of production, the producers exercise much more control over price than does the farmer who, after all things are considered, is the most essential of all producers. True, the farmer-producer should not get all the benefits from the transaction; furthermore, no particular middleman should get unreasonable benefits from the transaction; but it appears to the author that the farmer as a producer should realize from 70 to 75 percent on the consumer's dollar. Each middleman should, of course, realize a just reward for his services; but owing to the fact that too many men are prone to make money with pen, paper, and a selfish imagination supplemented by a shrewd, smooth, and controlling

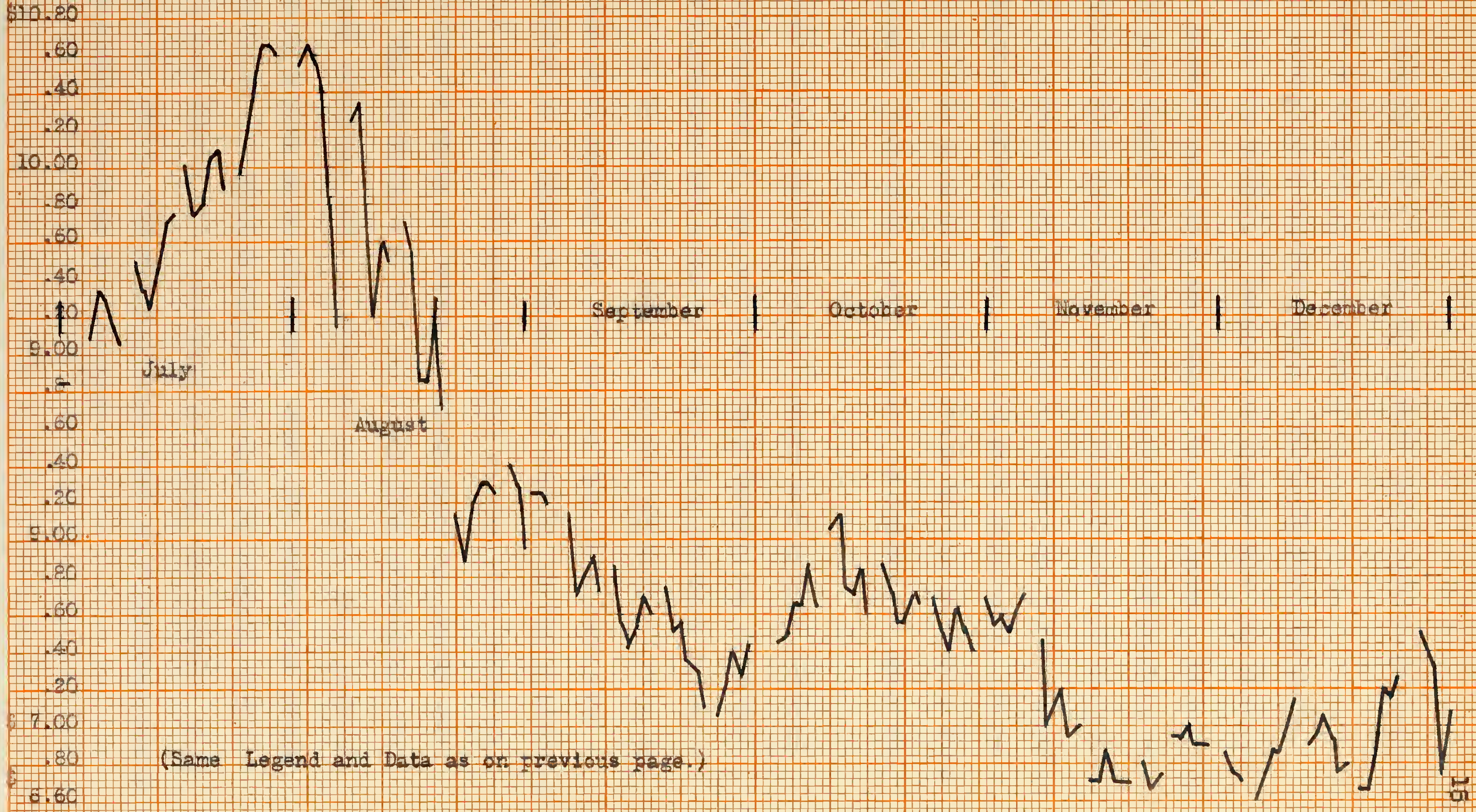
Chicago Daily Hog Prices For 1921.



Legend - Vertical - 5 spaces equal $ .20
¼ space equals .01
Horizontal - 1 space equals one day.
(The open spaces represent Sundays and Holidays)

Data - Drovers Journal p 48-49 (1921)

Chicago Daily Hog Prices For 1921 (Cont).



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manner of speech - the producer should take care lest there be too many middlemen in the field.

What determines market price? What causes prices to fluctuate on the market? Demand and Supply are the factors largely controlling price and hence fluctuations. Variations in Demand and Supply in turn are caused by a combination of many factors which are fairly easily determined but somewhat difficult to measure and to control. When one tries to determine which of these factors is the more important, it reminds one of the question, "Which blade of the scissors does the cutting?" Naturally, each factor is dependent upon the other.

A very clever definition of demand and supply offered by Mr. Moorehouse of the American Farm Bureau is, "Demand is the willingness and ability to buy at a certain price, and Supply is an offer to sell". In our particular case demand is the willingness and ability to buy live hogs and pork products at a certain price, and supply is the available tonnage of live hogs offered for sale at the live stock markets. Price is value in terms of money paid or credit extended in the purchase of live hogs and pork products. The fundamental economic rule of demand and supply that governs the field of price is as follows: when the supply is large and there is not a corresponding increase in demand, price will fall and buyers will purchase all they can handle; when the supply is small, the product will sell at a premium price and buyers will hesitate to purchase.

A - Factors Which Influence The Demand For Live Hogs.

Large stocks of fresh and cured pork, lard, and commercial by-products available, i.e. either ready for immediate consumption or in storage, tends to satiate demand, reduce the demand for live hogs, and lower price. When there is an extremely heavy run of hogs, owing to the fact that the public can not immediately utilize all this meat in the fresh state, it is necessary that a great amount pass into cure (this process requires from 30 to 90 days) and into storage. Fresh Pork Cuts, the pork loin being most popular, pass into immediate consumption, while Hams, Sides, Bellies, Backs, Loins, Shoulders, Butts and Plates, Mess Pork, Belly Pork, Back Pork, Shoulder Pork, Spareribs, and Trimmings are all pork products that go into the process of cure and are sold to the trade as Dry-Salt and Bacon Meats, Smoked Meats, Barreled or Plain-Pickled Pork, Sweet-Pickled Meats, "English" Meats, and Boiled Meats.

The supply, quality, and price of lard are important factors in determining the course of the hog market. From one-tenth to one-third of the hog carcass is made into lard. Continential Europe, especially Germany, imports enormous quantities of American lard. The standard grades of lard are: Kettle-Rendered, Kettle-Rendered-Leaf, Neutral, Prime Steam, Refined, and Compound Lard. These grades differ as to mode of rendering, flavor, grain, and color.

Commercial hog by-products consisting of casings, blood,

hair, grease, and tankage usually cover the cost of processing the carcass. The price of these products has a direct bearing on the necessary margin between the packer's buying and selling price and thereby contributes to price fluctuations. However, it should be borne in mind that hogs dress a relative high percent of salable meat and produce no hides or pelts of market value; therefore, the commercial by-products from the slaughter of hogs are of relative unimportance as compared with the by-products from the slaughter of cattle and sheep.

Current And Probable Future Value And Price Of Pork Products And By-Products.

While the packer must continually anticipate the probable future value of pork products, the packing business is so conducted that the price paid for raw material any one day is largely determined by the price received for the finished product on that day, even though two or three days, a week, or even a greater length of time intervenes between the slaughtering of the animal and the disposal of the marketable products. The use value of live hogs is their value as raw materials, and is estimated on the basis of present and anticipated future values of derived products. The current value and price of pork products is determined by what the public will pay for them. If industrial conditions are favorable, commercial by-products will sell for what the manufacturer will pay for them. The value of the heavy type hog

is determined by the quantity and price of lard, which prove very important factors in determining the course of the hog market. The value of the light type hog is determined by the value of its derived products. Probable future value and price can only be determined by estimate for no man can forecast price, he can only determine what has happened in the past, know what is happening at present, and scientifically estimate what might happen in the future. The factors to consider in future value determination are: current domestic consumption, storage, and export demand, and supply.

The Packer's Position In Price Determination.

The packer as a slaughterer, butchers hogs and sells a part of the carcass at once as fresh meat; as a manufacturer he takes the greater part of the carcass and places it in cure to produce more or less non-perishable commodities; as a surplus carrier he accumulates supplies of either cured or frozen products during the period of heavy production, and carries them to the time when production is small, thus tending to equalize supplies, consumption, and prices thruout the year. In his first capacity, and largely in his second, he is a manufacturer and merchandizer; he buys hogs as raw material and sells the resultant products making a manufacturing and distributing margin to cover costs and profit. As such, he is not primarily interested in price but in adjusting the cost of his raw material - hogs - to the value of the products so as to secure a margin of profit.

The more stable the prices of both hogs and pork products, the better he can operate. In his third capacity he is a speculative carrier of food supplies. As such, he is primarily interested in price. He must buy his raw material low enough during the period when he is accumulating supplies to make certain that he can sell these supplies later and make a profit. When the time comes for moving these supplies, he is then interested in having a high price for his products, for the higher the price, the greater his profits. This activity, however, is essentially speculative and involves considerable risks. There are many things that may affect his chances for profit, for instance, if there happens to be an increase in supply, there will, of course, be a decrease in price. Large supplies of cattle, cheap beef, sheep and mutton carcasses may cause a falling off in the demand for pork products. The anticipated foreign demand may not develop, and this will leave the surplus to be forced into the domestic markets.

B - Factors Which Influence The Demand For Pork Products.

Live hogs are in demand because the public desires to use certain parts of their carcasses in the form of food. The hog proves the most economical meat animal to butcher because of its high dressing percentage which ranges from 65% to 85% and averages 78%. About two percent of the trade is for the whole carcass, while fully three-quarters of the trade is for fresh and cured pork products. Pork is most

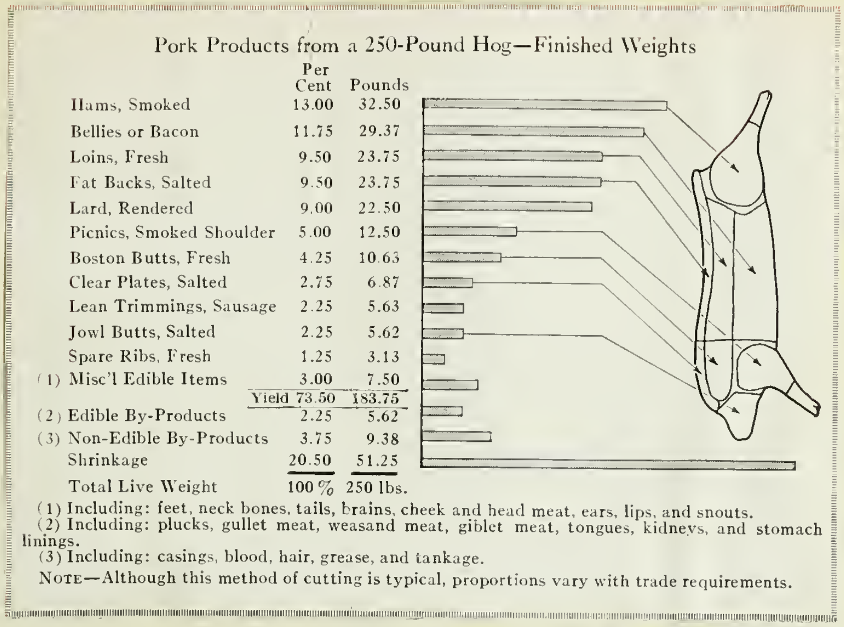
popular at hotels, restaurants, and cafeterias; people like pork and constantly demand it. The following figures represent the per capita pork and lard consumption in the United States from 1907 to 1921. These figures were compiled by the Bureau of Animal Industry and published in the 'Producer' on April 22, 1922.

Per Capita Pork And Lard Consumption.

Year	Pork	Lard
1907	74.1	12.5
1908	85.4	14.3
1909	68.6	11.6
1910	60.3	10.5
1911	75.1	11.8
1912	70.6	11.4
1913	72.5	11.7
1914	69.9	12.1
1915	72.0	13.6
1916	75.5	15.1
1917	58.4	11.7
1918	69.8	14.1
1919	67.1	12.4
1920	68.9	13.1
1921	72.8	11.3

The Popularity Of Choice Cuts.

From the diagram (on the following page) entitled "Pork Products From A 250 Pound Hog" one may easily determine how a representative hog carcass is cut. The choice cuts - hams, bacon, and loins - compose 34% of the carcass and sell at a higher price than do the poorer cuts, because choice cuts are more palitable, of higher food value, and the demand for them is very strong in comparison to the supply. In spite of hard times, the demand for choice cuts has continued, consequently price has not fallen; but the price of



Pork Products from a 250-Pound Hog—Finished Weights

	Per Cent	Pounds
Hams, Smoked	13.00	32.50
Bellies or Bacon	11.75	29.37
Loins, Fresh	9.50	23.75
Fat Backs, Salted	9.50	23.75
Lard, Rendered	9.00	22.50
Picnics, Smoked Shoulder	5.00	12.50
Boston Butts, Fresh	4.25	10.63
Clear Plates, Salted	2.75	6.87
Lean Trimmings, Sausage	2.25	5.63
Jowl Butts, Salted	2.25	5.62
Spare Ribs, Fresh	1.25	3.13
(1) Misc'l Edible Items	3.00	7.50
Yield	73.50	183.75
(2) Edible By-Products	2.25	5.62
(3) Non-Edible By-Products	3.75	9.38
Shrinkage	20.50	51.25
Total Live Weight	100 %	250 lbs.

(1) Including: feet, neck bones, tails, brains, cheek and head meat, ears, lips, and snouts.
(2) Including: plucks, gullet meat, weasand meat, giblet meat, tongues, kidneys, and stomach linings.
(3) Including: casings, blood, hair, grease, and tankage.

NOTE—Although this method of cutting is typical, proportions vary with trade requirements.

(Courtesy of Swift & Company,
Yearbook-1922 p 33)

lard, shoulders, meat sides, and other products has dropped seriously. As a general rule the average return for pork products keeps in line with the price of live hogs.

The High Cost Of Retailing.

The high cost of retailing is a decided factor in causing high-priced meat. The consuming public desires the best of service, so the public must pay for good service. The average purchaser does not buy in large quantities but in small quantities and desires the small packages to be delivered. The public will always pay a good price for a product with a brand, if it knows that it can depend on that brand.

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The United States Bureau of Markets made a survey in 1919 and 1920 of 214 individual retail meat markets and 216

branch stores in 17 chain systems covering 30 cities, including New York, Baltimore, Chicago, Memphis, New Orleans, San Francisco, Hartford, Conn., Pittsburgh, Des Moines, Raleigh, N. C., Birmingham, Ala., and Los Angeles, to discover the cost of selling meat in retail stores.

> "The survey revealed that of each dollar spent by the consumer for meat in 1919 in all types of stores, 81.1¢ represented the wholesale cost, 10.25¢ salaries and wages, 1.33¢ rent, .77¢ ice and refrigeration, .76¢ wrappings, .21¢ heat, light and power, .51¢ interest, 2.74¢ miscellaneous expense, and 2.29¢ retailer's net profit. The average pay of meat cutters increased from 32¢ an hour in 1913 to 60.8¢ in 1920 and 60.7¢ in 1921. The survey showed the difference in operating expenses between cash-and-carry stores and delivery stores to be about 12 percent, or less than 2¢ on each dollar's worth of meat sold."

Influence Of Industrial And Financial Conditions.

Industrial and financial conditions influence price but to just what extent is difficult to determine. However, it is safe to say that when industrial and financial conditions are flourishing and the laboring class has plenty of money, meat will be purchased freely and price will probably rise. On the other hand, if conditions are depressed, the buying public will purchase most economically. Under the title of "1921 Farm Exports Set New Record" the Chicago Daily Drovers' Journal printed on February 11, 1922 the following statement:

> "Unemployment and economic distress in the industrial regions usually means a lower standard of living and a decreased consumption of meats and other food products of this class. The falling off in meat demand alone probably amounts to seven pounds per capita."

Industrial and financial conditions affect price only as they affect supply and demand.

The Effect Of Religious Holidays.

Religious holidays also affect meat consumption but to just what extent is difficult to determine. To illustrate this point the following market report taken from Armour & Company's Weekly Trade Review of March 11, 1922 is offered:

> "Trade in fresh pork products has been steady which is all that can be expected during the Lenten season. Trade in cured pork is holding very good, the domestic trade moving especially well, which indicated that the Lenten season is not as big a factor in cured pork sales as it has been in the past."

During the Christmas holidays there is a strong demand for choice beef, poultry, and pigs and the price is usually high. From the following market report it may be seen how religious fast days affect meat consumption:

> "The demand for fresh meats was very light during the week ending April 14, 1922, because of the occurrence of several religious holidays and fast days, and the unusually high temperatures early in the week. Receipts were generally less than for the previous week, but within excess of the limited demand. The Easter sale of smoked hams was somewhat below normal."

The Effect Of Weather Conditions.

The demand for meat fluctuates with the change of season and with a change of weather. For example, meats like dried beef, sausage, and ham which can be used for cold lunches and on picnics are in greatest demand during the summer time, while the demand for fresh meats is greatest during the winter when people are especially interested in keeping warm. A snowstorm or sudden cold spell will immediately increase the demand for meat. The demand for fresh

pork, especially fresh sausage, is affected in the early part of the winter by farm butchering which in turn largely depends upon weather conditions.

Meat Has A Permanent Place In The Balanced Diet.

While the consumption of pork has remained fairly constant, there has been a decrease in the consumption of other classes of meat which has had a direct depressing influence on the price level of meats in general and an indirect influence on the price of pork. The two common arguments against eating meat are: first, meat is an expensive food; and second, meat is injurious to health. Considering the first argument, the choice cuts of meat prove relatively economic sources of food. In comparison with other foods, meats as a group contain the highest percentage of protein, the percentage varying from 14 to 30 percent. Eggs contain 11%, and milk 3.5%. while fresh vegetables contain the least - potatoes, string beans, beets, cauliflower, cabbage, parsnips, turnips, and onions - all containing less than two percent. The cost of protein and energy, both of which are most essential to the diet, are two points to be considered in the purchase of any food. Accurate tables show that as a source of energy one pound of salt pork is equivalent to 5¾ quarts of milk, 3¾ dozen eggs; one pound of bacon to 4 quarts of milk or 3½ dozen eggs; one pound of sausage to 3 quarts of milk or 2½ dozen eggs. In general, pork is one of the most economical sources of food value that is known.

Some people attempt to banish meat from the diet. Meat

should not be discarded from the diet for without meat the diet fails to be balanced. The balanced diet is most essential to the welfare of the body and the satisfaction of the individual, and in the diet, meat holds an important place.

Much has been said and written about the danger of eating meat. It is claimed that the danger lies in the amount of protein consumed. Authorities differ among themselves as to the amount of protein necessary to the daily ration, and this difference ranges from 75 to 125 grams daily. During 1920 the daily per capita consumption of all kinds of meat was 6.4 ounces which furnished 35 to 40 grams of protein per person per day. Since meat furnishes only one-third of the total protein consumed per capita, the fallacy of the oft-repeated "danger of too much protein" may be seen.

The tremendous importance of a small increase in per capita consumption is shown by the fact that an increase of one ounce per day in the per capita consumption of pork would be equivalent to 9,600,000 hog carcasses of 250 pounds each, or nearly 13 percent of the total number of hogs slaughtered during 1920. This per capita increase is an insignificant amount when looking at it from the individual standpoint, but from the national standpoint it represents an enormous increase and aggregate. Increased demand, however, tends to increase the price.

Pork In Competition With Other Meats.

The supply, quality, and price of other meats (including poultry) and meat substitutes has a direct influence on the price of pork, for pork is always in competition with

other meats. As a rule the public prefers beef to pork, but when financial conditions are depressing the public will turn to pork and will continue to eat pork until conditions return to normal. The demand for pork has remained fairly constant over a long period of years, while the demand for other classes of meat has fluctuated considerably. In the future the demand for pork will tend to increase because of the presence of a variety of new types of palitable, cured pork products which are constantly finding a popular and permanent place on the retail market.

Storage.

Storage, be it in whatever form, tends to stabilize price, for it takes a commodity in the time of plenty, stores it, and regulates its flow into consumption. Storage has no economic effect on a commodity, it just mechanically places it in a cool temperature and preserves it until it is needed. Cold storage does not materially affect the quality of meat. To scientifically show that meat preservation is a stabilizer of price the following figures as submitted by Armour & Company are offered:

Bimonthly Receipts And Sales Of Pork (Percentages).

	J F	M A	M J	J A	S O	N D
Receipts	23.4	15.1	17.0	11.3	11.5	21.7
Sales	20.9	16.5	14.8	16.2	16.1	15.5

Armour & Company's records show that during 1918-19 about 67% of pork was put in the semi-permanent form of lard or cured meats.

The following figures represent an eight year average of monthly hog prices at Chicago:

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
$10.20	10.65	11.50	12.00	12.00	11.75	12.20	12.35

Sept.	Oct.	Nov.	Dec.
$12.40	11.45	11.05	10.80

Average Price.	Standard Deviation.	Coefficient of Variability.
$11.35	.69	5.98

Coefficients of Variability.

For Supply.	For Price.	Amount Reduced.
27.5	5.98	21.52

From these figures we may conclude that by putting two-thirds of the hog supply into the semi-permanent form reduces variability from supply to price by 21.52 percent.

The big movement of hogs to market comes in the winter months and the light movement in the summer; but there is a big demand in the summer for cured pork products, and the only way this can be provided for is by the accumulation of stocks during the winter. Ordinarily, the accumulation begins in November when the winter run of hogs starts, but in some years this accumulation may be delayed until the following months due to unusual domestic demand, too large foreign shipments, or to the delayed start of the heavy movement of hogs. This accumulation continues during the winter months and makes up a variable amount of the total winter production. For the past four years it has run from 450 to 550 million pounds, and has varied between 11% of the total winter pro-

duction in 1916-17 to 23% in 1917-18; the last three years it has been 16% and 18% respectively. It amounts to between 8% and 10% of the total yearly production.

Exports.

In comparison to our total production our export trade is very small, from 10 to 15 percent; however, it has much to do with determing the domestic value of pork products, and hence the price of live hogs; for, 'it is a fundamental commercial axiom that the domestic price of any staple product is largely governed by the price which the surplus will bring abroad'.* The United States has a virtual monopoly of the surplus supplies of most pork products, the foreign demand being in excess of the local supply which must, of course, be satisfied by imports of American products. Normally, these exports go in a fairly uniform monthly volume, varying somewhat according to monthly production. The greater or less amount of this export affects materially the domestic price of hogs.

England is our chief buyer, the United States furnishing 51 percent of the British consumption of cured pork. Germany takes all the lard we can furnish. In order to show how important this export trade is in determining domestic price Mr. J. E. Poole, Chicago's most talented livestock reporter, said, "The ability of Europe to take our excess of pork and lard will determine hog values in 1922". In reviewing the year of 1921 this versatile reporter says,

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*-Mr. M. F. Horine's Statement.

"During the past year Germany has resumed its prewar status as the chief customer for American lard; the British market is absorbing enormous quantities of American lard and bacon; and Canada, the West Indies, and South and Central America are buying the products of North American packing houses, in the capacious maw of which a large percentage of the cornbelt hog crop goes.

"But for adverse European exchange conditions, the heavy 1921 volume of export trade would have been materially larger; as it was, during the period November 1, 1920, to October 15, 1921, we exported 9,129,000 pounds of barreled pork, 591,067,287 pounds of bacon and hams, and 822,741,850 pounds of lard. Despite the fact that on a tonnage basis the 1921 hog crop was one of the largest crops in trade history, by November 1st, the bulk of it had gone into consumptive channels. A heavy midsummer accumulation, especially of lard, melted away in surprising fashion when 40,000,000 pounds of lard and cured meats were sent across the Atlantic during the September and October merchandising season. This statistical statement assures the prosperity of the trade, and as the European larder displays bare shelves, the opportunity will offer itself for American products to be placed there."

During the first two trimesters* of the hog crop year, the price realized from foreign sales must be practically equal to what the same supplies could be moved for in the domestic market, for any falling off in the price of products will be reflected back into the hog market. During the last trimester, when the surplus stocks must be cleaned up, it is possible to sell for export at less than the domestic price, in order to remove too heavy stocks which are apt to depress the domestic market; this amounts to holding up the domestic price by means of a foreign outlet for a surplus; however, this is not the usual business policy. The export demand and movement during the packing season, also may have an effect in influencing the estimated value of hogs for storage purposes, for it is an indication as to what will be

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* The hog crop year is divided into three four-month periods. The first trimester starts on November 1st.

the foreign demand during the season when these stocks are cleaned up. The demand for pork products is more elastic than is that for some other kinds of staple foods; hence, price changes affect both domestic and foreign demand.

Competition.

When the market is filled with urgent buyers, price will be substantial to high and the trade will consequently be strengthened. During the past year (1921) the presence of many outside buyers has caused considerable competition in the hog market. This competition, of course, resulted in good prices. The following market report is submitted to illustrate this fact:

> "Shipments, which were the chief strengthening factor in the trade, amounted to 2,170,433 (pounds) and stood heaviest since 1894. They reflected the broad domestic demand for pork to satisfy an appetite for roasts, fresh hams, and bacon which had been curbed by wartime prices.
>
> "Buying by outsiders, which was unusually broad and by far the leading price making factor during the closing month was 513,905 (pounds) larger than the previous year."

Speculators.

Speculators, at times, really create value on the market. At times, speculators perform a stabilizing influence on the market by taking out of immediate slaughtering channels an unusual surplus. Of speculators and price Mr. Armour speaks as follows:

> "The extreme fluctuations occurring in the quotation on hogs are not due to meat packers; they are largely, though not entirely, due to operations of what are commonly known as speculators. When receipts are light, speculators run prices up. Prices remain high as long as receipts remain

light and packers buy only what they have pressing need to keep their plants operating, then when receipts pick up materially and there is a greater supply than the speculators have outlet for, prices naturally drop back to where they were before the speculators forced them up. These breaks can not properly be credited to the packer any more than the increase in price. "

III - THE FACTOR OF SUPPLY.

A - Factors Which Influence Hog Production And Population.

Hog Production And Population.

The production of hogs in the United States is more concentrated than is that of any other species of meat animals; and the commercial marketing, i.e. movement out of localities where produced to the large stockyards markets or to large slaughtering establishments, is even more concentrated. For the only year when figures are available, 1918, showing both the numbers and the carload loadings in the different states, the twelve states making up the north and west central groups of states produced 59.2 percent of the hogs, and loaded 88.3 percent of all hogs moving in carloads. These two groups of states constitute the cornbelt and the regions immediately adjacent. Within this territory also, the production and commercial movement is again concentrated, the five states of Iowa, Illinois, Indiana, Missouri, and Nebraska producing 40% of the country's total, and furnishing 60% of the car loadings. The car loadings in Iowa alone made up 28% of the total, after eliminating the

Hogs On Farms And Ranges In The United States.

	Percent of Preceeding Year.	Total Number.	Values. Per Head.	Values. Aggregate.
Swine January 1922	101.6	56,996,000	$10.06	$ 573,405,000
" 1921	94.5	56,097,000	$12.97	$ 727,380,000
" 1920	96.2	59,344,000	$19.07	$1,131,674,000

	Number.	Price Per Head.	Farm Value January 1st.
Census 1900, June 1.	62,868,041		
1901	56,982,000	$ 6.20	$ 353,012,000
1902	48,699,000	$ 7.03	$ 342,121,000
1903	46,923,000	$ 7.78	$ 364,974,000
1904	47,009,000	$ 6.15	$ 289,225,000
1905	47,321,000	$ 5.99	$ 283,255,000
1906	52,103,000	$ 6.18	$ 321,803,000
1907	54,794,000	$ 7.62	$ 417,791,000
1908	56,084,000	$ 6.05	$ 339,030,000
1909	54,147,000	$ 6.55	$ 354,794,000
1910	47,782,000	......	....
Census 1910, April 15.	58,185,676	$ 9.17	$ 533,309,000
1911	65,620,000	$ 8.37	$ 615,170,000
1912	65,410,000	$ 8.00	$ 523,328,000
1913	61,178,000	$ 9.86	$ 603,109,000
1914	58,933,000	$10.40	$ 612,951,000
1915	64,618,000	$ 9.87	$ 637,479,000
1916	67,766,000	$ 8.40	$ 569,573,000
1917	67,503,000	$11.75	$ 792,898,000
1918	70,978,000	$19.54	$1,387,261,000
1919	74,584,000	$22.02	$1,642,598,000
1920	71,727,000	$19.01	$1,363,269,000
1921	66,727,000	$12.99	$ 865,633,000

Note:
These figures are taken from the U.S. Yearbook for 1920.

Swine On Farms In 1920.

	Farms Reporting.		Animals.		
	Number.	% of all farms.	Number.	Value	Av. Value.
Pigs under 6 nonths old.	119,787	50.5	1,887,329	$14,100,462	$ 7.47
Sows and gilts for breeding, 6 months old and over.	158,209	66.7	929,826	$31,208,926	$33.56
Boars for breeding, 6 months old and over.	61,562	26.0	76,148	$ 3,623,947	$47.29
All other hogs 6 months old and over.	109,026	46.0	1,745,879	$41,269,701	$23.64
Swine total.	198,718	83.8	4,639,182	$90,203,036	$19.44

Seven Leading Hog Producing States.

	(Numbers in thousands)		Average Price per head.		Farm Value (thousand of dollars) January 1st.	
	1921	1920	1921	1920	1921	1920
Iowa	9,510	10,010	$14.50	$21.80	137,895	218,218
Illinois	4,585	5,152	$13.70	$20.50	62,814	105,616
Indiana	4,209	4,575	$13.00	$19.00	54,717	86,925
Missouri	4,047	4,305	$11.00	$16.50	44,517	71,032
Ohio	3,921	4,309	$13.30	$19.20	52,149	82,733
Georgia	3,102	3,165	$11.50	$16.90	35,673	53,488
Nebraska	3,063	3,366	$13.50	$20.90	41,350	70,349

(These figures are taken from the United States Census Report of 1920.)

loadings out of the stockyards markets.

Cycle Of Hog Production.

In considering long periods of time, theoretically, the cycle of hog production runs about as follows: the years of heavy receipts are followed, more or less, by years of light receipts, the periods of heavy receipts tending to be some four or five years apart. If the price of hogs is high one year, then in order to get the benefit of the profit, farmers will busy themselves the following year to increase their yearly production. This heavy increase in production will call for more corn; thus the price of corn will gradually rise, and continue to rise until a year comes when there will be a large number of spring pigs to feed out in the fall, and the corn needed will be so high priced that the raising of hogs will prove quite unprofitable. Because there will be more profit in growing corn, farmers will cease raising hogs and start to grow corn. When farmers reduce their number of hogs, the hog population naturally decreases, the demand for corn also decreases, and consequently the price of corn will fall. When the number of hogs decreases, the farmer should always bear in mind the fact that there will be a steady demand for hogs, because so many farmers went out of the hog business. The price of hogs, therefore, will be high and the hog business will again become profitable. This fact will tend to increase production gradually for a few years; and thus another cycle is started.

The Relation Between Corn And Hogs.

The foregoing cycle is fairly representative of the yearly relation between corn and hogs for over a long period of time, while the following discussion is representative of the short-time (seasonal) relation between corn and hogs. Hog production is closely associated with the production of corn. If weather conditions are unfavorable and the corn crop is short, either in actual bushels or in comparison to the supply of hogs, or if the price situation is unfavorable for hog feeding, the market supply will move early both in the year and the season, and hog prices will be high due to the scarcity demand. On the other hand, if the corn crop is large and of high feeding value, hogs will be fed to maximum weight moving to market late, receipts will be heavy, and if there is not a corresponding increase in demand, the price of hogs will be low, due to the over-supply. The corn situation also influences the cattle feeding situation, and this has an important bearing upon the hog movement.

The prices of corn and hogs are closely related, but all things being equal, the economic law of supply and demand determine these prices. * When hog prices are relatively higher than corn prices, farmers are encouraged to produce more pork by feeding corn, and this results in the farmer keeping his sows and pigs from market; thus feeding more corn will result in its scarcity and high price.

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* It is important to know that for over a period of 53 years Wallace's Agricultural Prices states that it has taken on the average 11.4 bushels of corn to produce 100 pounds of pork.

On the other hand, when corn prices are relatively higher than hog prices, farmers will sell corn rather than feed it, which, of course, will cause a falling off of hog receipts which in turn will tend to increase the price of hogs.

The Effect Of Weather Conditions.

Weather conditions are the controlling influence in determining the success or failure of the corn crop, and indirectly receipts and price of hogs. The high price of hogs is usually due to a shortage in supply, due in turn to a shortage of feed, and consequently unfavorable weather conditions. Conversely, low-priced hogs result from an over-supply, which in turn is due to plentiful and low-priced feeds, consequently a favorable growing season.

Bad storms, heavy and excessive rains, and much hail will seriously impair crops and traffic conditions. From Armour & Company's Weekly Trade Review of March 27, 1922, concerning impaired traffic and prices we read:

> "Dirt roads throughout the middle west have been rendered next to impassable by rains and thaws, and, consequently, livestock producers have found great difficulty in getting hogs, and even cattle, to market.
>
> "Truckloads of hogs hub deep in mud were common sights in the country last week and this week. As a result of the light receipts there is a very light supply of fresh pork to meet a rather insistent demand. Prices are strong, as ought to be expected, in view of the fact that the total supply of fresh pork is only about a quarter of what it was this time last year."

Even cold weather in another country is an important price-fixing factor, as may be judged from the following

account taken from Wallace's Farmer of April 14, 1922 and entitled "Cold Weather In Denmark And The Prices Of Hogs At Chicago":

> "Shipments of Danish bacon were held up to a considerable extent in February by ice around Denmark. Largely as a result of the storage of Danish bacon on the British market in February, prices of American bacon rose and in sympathy with this advance of American bacon prices, the price of hogs at Chicago rose. In March the delayed shipments of Danish bacon began to arrive in England, and as a result American bacon prices declined and Chicago hog prices declined."

Weather conditions may cause serious mortality in the pig crop and thus diminish autumnal receipts which will result in premium hog prices. Taken from the Government's publication of "Weather, Crops, and Markets" an item pertaining to this fact reads:

> "General heavy rains for the early part of the week of April 10, 1922, were unfavorable for the farrowing and proper care of spring pigs. According to many reporters, the crop of spring pigs has been subjected to severe losses. However, a considerable increase in the number of brood sows on farms this spring suggests a liberal crop of pigs, unless mortality at farrowing time assumes a still wider scope."

The livestock industry is a poor industry when drought destroys crops and the farmer does not have sufficient feed to develop his stock. The year 1921 proved as deplorable for England as the United States, as may be noted by an article published in the Yorkshire Trade Post Review which reads as follows:

> "The season's distress for Agriculture is attributable both to the lamentable state of industry in general and to the consequence of a disastrous summer, caused by drought, for crops, and I am inclined to regard the latter as the more potent of the two."

Hence, weather conditions have a decided indirect in-

fluence in determining and fluctuating the price of live hogs. These conditions can not be controlled by mortal man, but man can do much to shelter and protect his stock and keep it in a healthy, marketable condition.

The Effect Of Disease.

Unless there is a great plague of disease in the nation which would materially reduce receipts and raise price, disease is a negligible factor in price fluctuations; however, disease is probably responsible for a higher level of prices than would otherwise exist. To show how disease affects quality of carcass and market price, the following market report is submitted:

> "Buyers will always complain of rough-skinned hogs, especially those hogs which are affected with mange. If the animals are kept in filthy quarters, and lie around old mouldy straw stacks and such places, they will likely show mangy backs and jowls. At the markets mangy hogs will sell 10¢ per cwt., less, a total loss of $10.00 to the farmer. The hams, one of the highest priced cuts, usually show the greatest damage. Skins affected with mange will not scald out clean and white."

Hog cholera is the most important of hog diseases being responsible for 75 to 85 percent of hog mortality. Mr. P. D. Armour once said, "If it were not for cholera, hogs would be worth $1.00 a dozen." To a certain extent this statement is true, but in order to guarantee the nation's meat supply, disease among hogs must be repressed. So far, the market has never failed to use every pound of pork that has been offered.

B - Factors Which Influence The Time Of Marketing Hogs.

Market Movement Of Hogs.

The majority of hogs produced in the cornbelt go either to the ten stockyards market, located in or close by, where they are sold for local slaughter or for shipment for slaughter. These ten markets receive around 70% of all hogs passing thru stockyards markets. The market movement of hogs is almost entirely a movement of animals for slaughter. However, during recent years there has developed a stockyards trade in stocker and feeder pigs, but for the year 1920 this only amounted to 1.7% of the receipts at all markets, nearly one-half being at the two markets of Kansas City and St. Paul, where it constitutes an important part of the out shipments, around 33% at the former and 40% at the latter. These pigs come largely from without the cornbelt and are sold for shipment to cornbelt feed lots where they will be finished for market.

Hogs shipped to the stockyards markets have two outlets, either they are bought for local slaughter at plants located at or near these yards, or they are bought for shipment to slaughtering establishments located elsewhere, or for shipment to other markets. There is very little intermarket speculative movement, i.e. the purchase of hogs at one market by traders, for shipment to another market.

(Thus a good many hogs are shipped from one market to another and are counted twice in the stockyards receipts, but these are largely hogs shipped for slaughter direct, but

which are included in the count at the market at the destination point. This, then, accounts for the discrepancy between the total marketings and total commercial slaughter.)

There proves to be a great difference among the leading markets in the local slaughter and shipping outlets for hogs, also the demand from these two sources differs at different seasons of the year. For the year 1920 at all markets 64% of the hogs were bought for local slaughter and 36% for shipment. The low month for local slaughter, September, took 61% and the high month 67%. The yearly percentages for local slaughter and shipments at the leading markets for 1920 were as follows:

Market.	Percentage.			Market.	Percentage.		
	Sl.		Ship.		Sl.		Ship.
St. Paul	85	and	15%	Omaha	73	and	27%
St. Joseph	83	"	17%	Sioux City	59	"	41%
Fort Worth	80	"	20%	E. St. Louis	49	"	51%
Chicago	78	"	22%	Indianapolis	46	"	83%
Kansas City	74	"	26%	Buffalo	42	"	58%.

Besides the hogs that go thru the stockyards markets on the road to slaughter, there is also a considerable volume that goes direct to packing establishments or are assembled at concentration points for shipment direct. There are no reliable figures to indicate the importance of this movement, but in some states it has assumed large proportions and is apparently on the increase. The 1918 loading reports show that in Iowa the movement to local packing-houses and from concentration points was over one-third the movement to stockyards markets, and if the movement to unnamed points is included, it brings the total of cars greater than the total loadings of any other state, except Illinois.

Hogs are the only species of meat animals with which there is a fairly fixed relation between the numbers in the country and the numbers to be marketed and slaughtered. The great bulk of hogs go for slaughter within twelve months from the time they are born, and especially is this fact true of the hogs that are produced in the surplus region. The great part of the pigs are farrowed in the spring of the year, and are sold for slaughter the following winter and early spring. There are also considerable numbers of summer and fall pigs that go to market the following summer and fall.

The size of the corn crop, which very largely determines how a crop of hogs will be marketed, usually is determined by November 1st of each year. The cleaning up of old storage stocks and the accumulation of new ones, normally begins at this time. The supply of hogs on November 1st, from which the numbers to be slaughtered within the next 12 months will be drawn, consists in a general way of the following:

(1) Five percent of sows. This supply is made up of brood sows that farrowed in the spring and have not yet been fattened and marketed, and of sows that have produced fall litters.

(2) About 85% of young hogs farrowed prior to July 1st.

(3) About 10% of pigs farrowed after July 1st.

The supply on hand November 1st will be handled about as follows:

(1) A variable percentage, depending upon conditions encouraging or discouraging hog production, running from 20%

to 25% will be retained as brood sows and bred in November, January, and February.

(2) Another variable percentage running from 6% to 10% will be slaughtered for use on the farm or for local consumption.

(3) The summer and fall pigs, estimated at 10%, will be carried over until the next summer.

(4) Of the balance, a variable percentage running from 55% to 70% will be marketed during the four winter months. The total numbers marketed during this season will show the greatest variations from year to year, for there is a very marked tendency for increased production to be moved during this period.

The market movement of the hog crop is considered on the basis of three four-month periods (trimesters) beginning with November 1st. The winter supply comes from one type of farming and this movement ends about the first of March. The second seasonal supply comes from a different group of farmers and a different type of farming. The last supply proves to be the clean up from all kinds of producers. The monthly movements within the season, and to some extent the seasonal movements, are determined very largely by the size and condition of the corn crop and the prevailing relationship between the prices of hogs and corn.

Hog Prices Follow A Definite Movement Over A 20-Year Period.

To illustrate how hog prices have fluctuated during the

last twenty years the following discussion is offered. This closely follows an article entitled "Hog Prices Usually Reach Top In September" and published in the 'Market Reporter' on October 22, 1921.

A study of hog prices over a 20-year period reveals the fact that hog prices have four well-defined movements. The first movement shows daily fluctuations due to local causes and the relation of supply to immediate demand. The second and third movements occur annually and are influenced by both supply and demand, with supply, in this case, the more important of the two. The third and less pronounced movement shows that prices move in a narrower range than they do in the second movement. The fourth and major price movement extends over a period from three to five years.

Lowest Prices In Fall.

Based on this extensive 20-year study, it may be concluded that the low price registered in the downward movement of the late spring and early summer months was only five times, out of a possible twenty, less than the very low price of the previous fall or winter decline. The lowest price of the winter decline was recorded in 10 instances in December, 5 in November, 3 in October, and 2 in February. In fourteen of these years the low prices occurred between November 20th and the Christmas holidays.

The amount of decline from the peak of the summer and early fall rise to the low-priced valley of the fall and

winter decline has varied from 59¢ in 1909 to $9.40 in 1919. Expressed in percentage, the decline has ranged from 7.2% to 45.5%. The big decline of 1919 followed a highly speculative upward movement which culminated in July of that year. The decline of $7.60 registered in the fall of 1920 and following the rise which ended in late September of that year, was the second largest decline in money value recorded in twenty years, and this decline was coincident with the general price decline of all commodities. During the thirteen years preceding the war, the fall and winter decline ranged from 59¢ to $2.15 or in terms of percentage, 7.2% to 33.3%, using the high price of the preceding summer as a basis. During nine of these thirteen years the decline ranged from $1.12 to $1.89. This represented an average decline of $1.50 per 100 pounds or 20.7% of the summer high.

In reviewing the year 1921, hogs on October 1st had declined $3.10 or 30% from the high point of $10.35 during the last week in July. In this connection, however, it should be remembered that while the decline has exceeded by 9.3% the average decline of the nine prewar years, it is still 3.3% under the extreme decline of the 20-year period which decline occurred in December 1920.

Highest Prices Paid In April.

The rise in price in the spring usually reaches its crest during the first two weeks of April, although in two instances in twenty years the spring cycle did not occur,

for the major upward movement proved the dominating influence. However, during the other 19 years the top price was reached 9 times in April, 4 in May, 3 in March, and once in January, February, and June. Seven out of nine times when the highest prices were paid in April, the top price was paid during the first two weeks of that month. The rise which ended in May and June occurred during the war period when the general price level was moving upward, and that prior to the war and during the last two years ended not later than April 21st.

The advance from the low of the fall decline to the high of the spring rise ranged from $1.01 to $6.65 in the nineteen years that a spring rise occurred; the usual amount with the exception of the war period, being between $1.00 and $2.00. The largest advance, of course, occurred in the spring of 1917 when the great demand for pork for the Allied Armies caused a decided upward movement in the price of live hogs. Expressed in percentage, the rise has ranged from 13.6% in 1921 to 70% in 1917; in 12 instances the advance ranged from 13.6% to 28.6%.

Following the early spring rise comes the late spring and early summer decline which is less than the decline occurring in the fall. This early summer decline usually ends the latter part of May or the early part of June. In the years when the downward movement extended well into the summer, abnormal economic conditions usually prevailed.

Decline Ends Early In Summer.

During a period of nineteen years the late spring and early summer decline culminated 7 times in May, 6 in June, and 3 in July and August. Ten times the bottom was struck during the four weeks that follows the 15th of May. The amount of the declines following the spring rise has ranged from 26¢ to $2.85. In four instances the amount exceeded $2.00 and in five instances more than $1.00 but less than $2.00. In percentage terms, the decline has ranged from 3.6% to 29% and in 11 instances it was less than 10%.

The summer rise, in which the highest prices of the year are paid, ends in September. It ended 10 times out of a possible 20 during this month, 5 times in July, and 3 in August and October. The tendency is for the rise to come during the four weeks following September 15th. The amount of the late summer rise has ranged from 40¢ to $3.95. Prior to the war these advances never exceeded $1.67 but since 1916 they have never been less than $2.00. Expressed in percentage, the advance has ranged from 6.3% to 31.8%, the latter percentage being made during 1921.

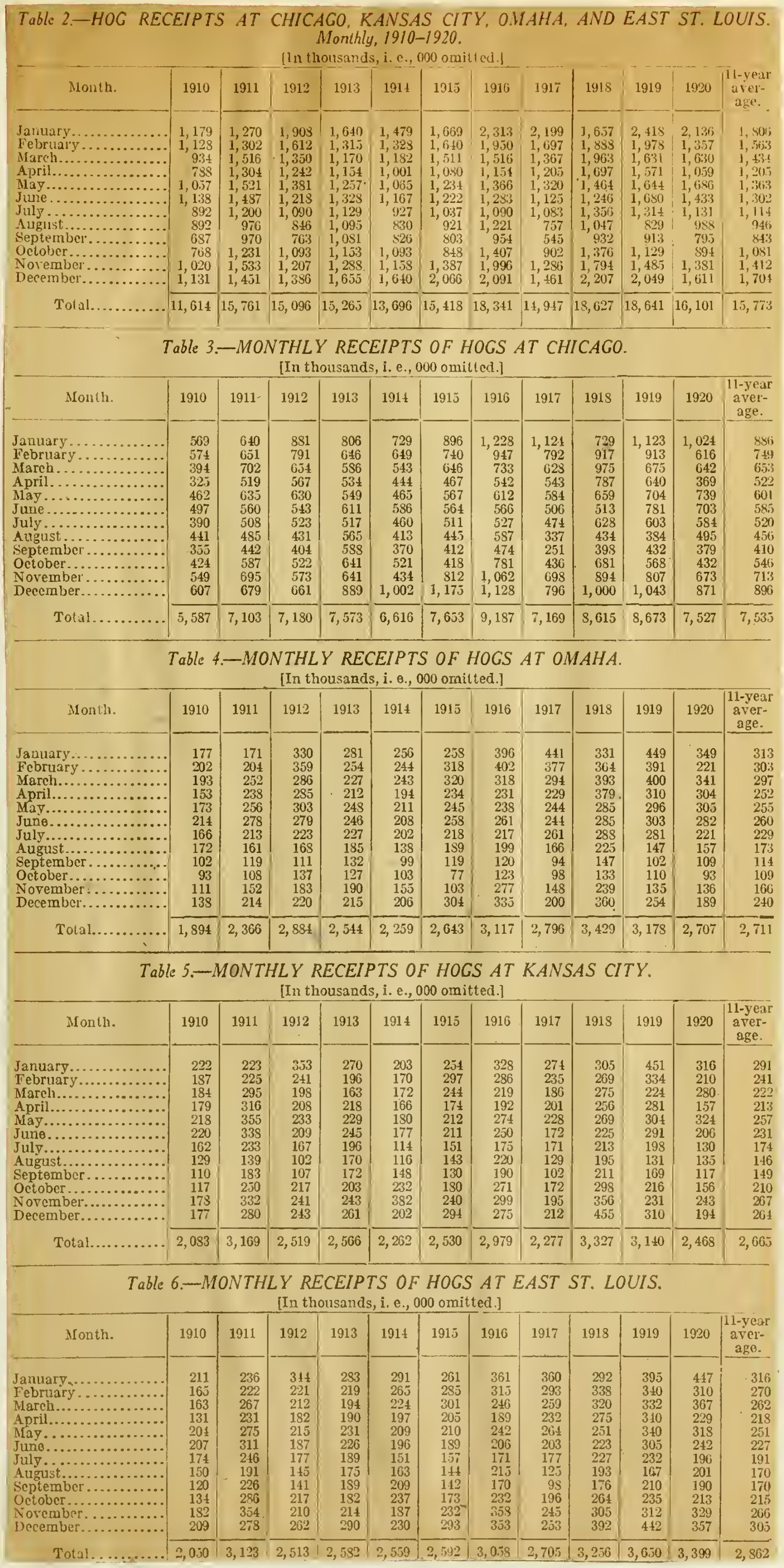


Table 2.—HOG RECEIPTS AT CHICAGO, KANSAS CITY, OMAHA, AND EAST ST. LOUIS.

Monthly, 1910–1920.

[In thousands, i. e., 000 omitted.]

Month.	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	11-year average.
January	1,179	1,270	1,908	1,640	1,479	1,669	2,313	2,199	1,657	2,418	2,136	1,806
February	1,128	1,302	1,612	1,315	1,328	1,640	1,950	1,697	1,888	1,978	1,357	1,563
March	934	1,516	1,350	1,170	1,182	1,511	1,516	1,367	1,963	1,631	1,630	1,434
April	788	1,304	1,242	1,154	1,001	1,080	1,154	1,205	1,697	1,571	1,059	1,205
May	1,057	1,521	1,381	1,257	1,065	1,234	1,366	1,320	1,464	1,644	1,686	1,363
June	1,138	1,487	1,218	1,328	1,167	1,222	1,283	1,125	1,246	1,680	1,433	1,302
July	892	1,200	1,090	1,129	927	1,037	1,090	1,083	1,356	1,314	1,131	1,114
August	892	976	846	1,095	830	921	1,221	757	1,047	829	988	946
September	687	970	763	1,081	826	803	954	545	932	913	795	843
October	768	1,231	1,093	1,153	1,093	848	1,407	902	1,376	1,129	894	1,081
November	1,020	1,533	1,207	1,288	1,158	1,387	1,996	1,286	1,794	1,485	1,381	1,412
December	1,131	1,451	1,386	1,655	1,640	2,066	2,091	1,461	2,207	2,049	1,611	1,704
Total	11,614	15,761	15,096	15,265	13,696	15,418	18,341	14,947	18,627	18,641	16,101	15,773

Table 3.—MONTHLY RECEIPTS OF HOGS AT CHICAGO.

[In thousands, i. e., 000 omitted.]

Month.	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	11-year average.
January	569	640	881	806	729	896	1,228	1,124	729	1,123	1,024	886
February	574	651	791	646	649	740	947	792	917	913	616	749
March	394	702	654	586	543	646	733	628	975	675	642	653
April	325	519	567	534	444	467	542	543	787	640	369	522
May	462	635	630	549	465	567	612	584	659	704	739	601
June	497	560	543	611	586	564	566	506	513	781	703	585
July	390	508	523	517	460	511	527	474	628	603	584	520
August	441	485	431	565	413	445	587	337	434	384	495	456
September	355	442	404	588	370	412	474	251	398	432	379	410
October	424	587	522	641	521	418	781	436	681	568	432	546
November	549	695	573	641	434	812	1,062	698	894	807	673	713
December	607	679	661	889	1,002	1,175	1,128	796	1,000	1,043	871	896
Total	5,587	7,103	7,180	7,573	6,616	7,653	9,187	7,169	8,615	8,673	7,527	7,535

Table 4.—MONTHLY RECEIPTS OF HOGS AT OMAHA.

[In thousands, i. e., 000 omitted.]

Month.	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	11-year average.
January	177	171	330	281	256	258	396	441	331	449	349	313
February	202	204	359	254	244	318	402	377	364	391	221	303
March	193	252	286	227	243	320	318	294	393	400	341	297
April	153	238	285	212	194	234	231	229	379	310	304	252
May	173	256	303	248	211	245	238	244	285	296	305	255
June	214	278	279	246	208	258	261	244	285	303	282	260
July	166	213	223	227	202	218	217	261	288	281	221	229
August	172	161	168	185	138	189	199	166	225	147	157	173
September	102	119	111	132	99	119	120	94	147	102	109	114
October	93	108	137	127	103	77	123	98	133	110	93	109
November	111	152	183	190	155	103	277	148	239	135	136	166
December	138	214	220	215	206	304	335	200	360	254	189	240
Total	1,894	2,366	2,884	2,544	2,259	2,643	3,117	2,796	3,429	3,178	2,707	2,711

Table 5.—MONTHLY RECEIPTS OF HOGS AT KANSAS CITY.

[In thousands, i. e., 000 omitted.]

Month.	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	11-year average.
January	222	223	353	270	203	254	328	274	305	451	316	291
February	187	225	241	196	170	297	286	235	269	334	210	241
March	184	295	198	163	172	244	219	186	275	224	280	222
April	179	316	208	218	166	174	192	201	256	281	157	213
May	218	355	233	229	180	212	274	228	269	304	324	257
June	220	338	209	245	177	211	250	172	225	291	206	231
July	162	233	167	196	114	151	175	171	213	198	130	174
August	129	139	102	170	116	143	220	129	195	131	135	146
September	110	183	107	172	148	130	190	102	211	169	117	149
October	117	250	217	203	232	180	271	172	298	216	156	210
November	178	332	241	243	382	240	299	195	356	231	243	267
December	177	280	243	261	202	294	275	212	455	310	194	264
Total	2,083	3,169	2,519	2,566	2,262	2,530	2,979	2,277	3,327	3,140	2,468	2,665

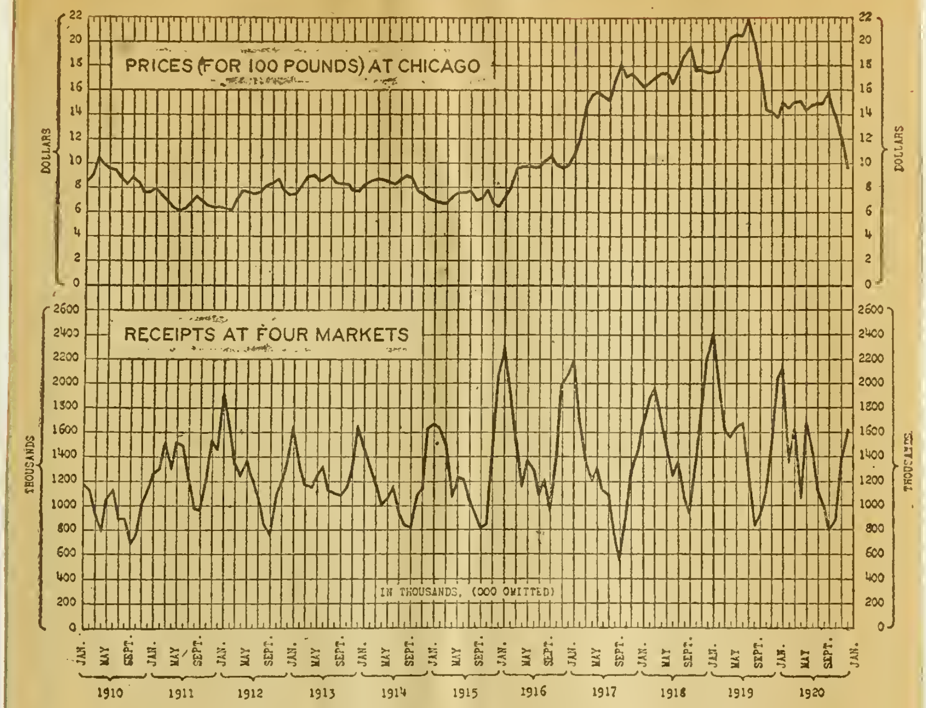
Table 6.—MONTHLY RECEIPTS OF HOGS AT EAST ST. LOUIS.

[In thousands, i. e., 000 omitted.]

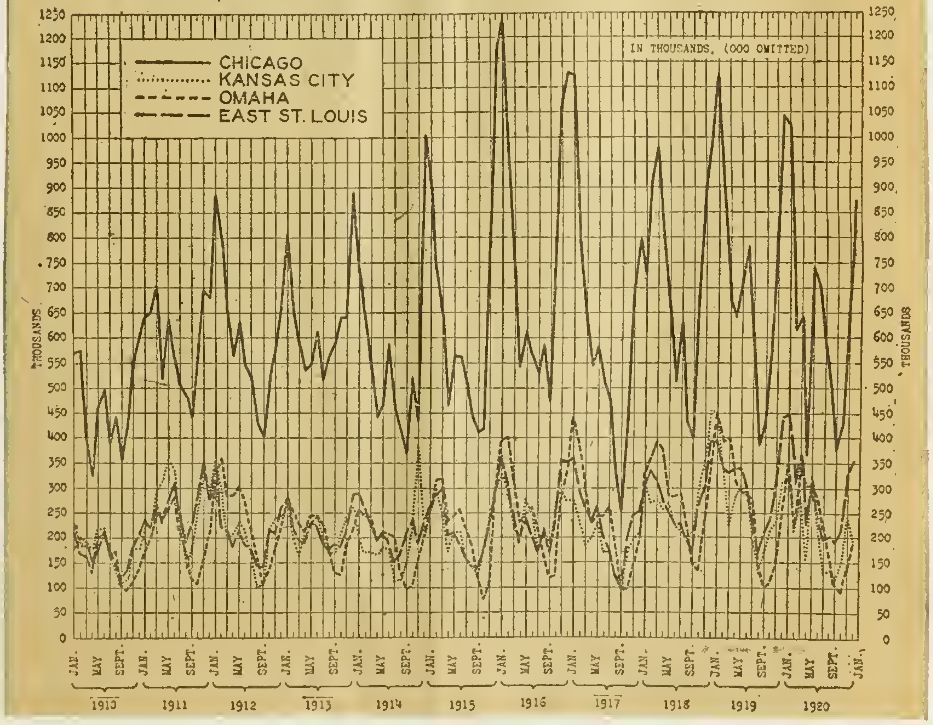
Month.	1910	1911	1912	1913	1914	1915	1916	1917	1918	1919	1920	11-year average.
January	211	236	344	283	291	261	361	360	292	395	447	316
February	165	222	221	219	265	285	315	293	338	340	310	270
March	163	267	212	194	224	301	246	259	320	332	367	262
April	131	231	182	190	197	205	189	232	275	340	229	218
May	204	275	215	231	209	210	242	264	251	340	318	251
June	207	311	187	226	196	189	206	203	223	305	242	227
July	174	246	177	189	151	157	171	177	227	232	196	191
August	150	191	145	175	163	144	215	125	193	167	201	170
September	120	226	141	189	209	142	170	98	176	210	190	170
October	134	286	217	182	237	173	232	196	264	235	213	215
November	182	354	210	214	187	232	358	245	305	312	329	266
December	209	278	262	290	230	293	353	253	392	442	357	305
Total	2,050	3,123	2,513	2,582	2,559	2,592	3,058	2,705	3,256	3,650	3,399	2,862

(Taken from the Market Reporter February 12, 1921)

HOGS: MONTHLY AVERAGE PRICES AT CHICAGO AND MONTHLY RECEIPTS AT FOUR MARKETS.

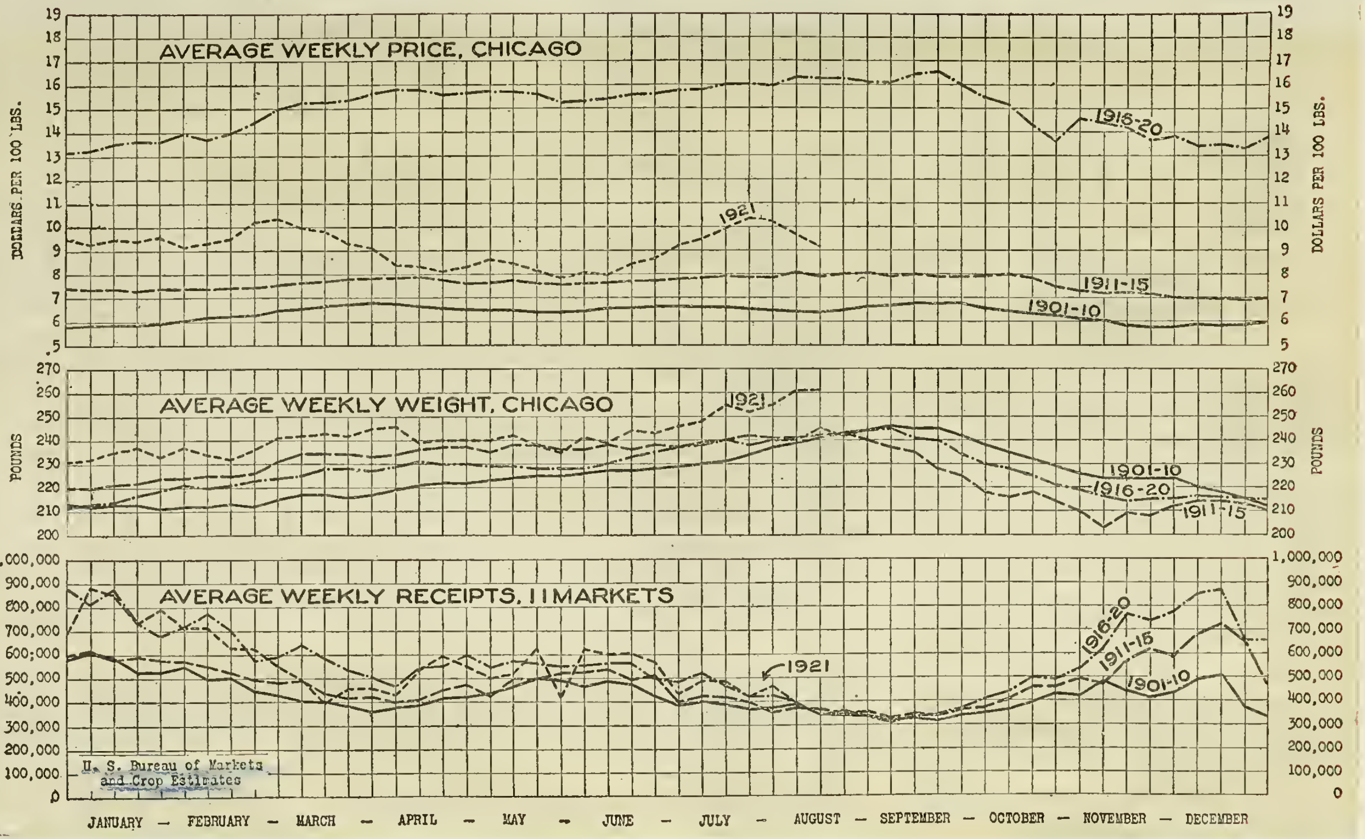


HOGS: MONTHLY RECEIPTS AT EACH OF FOUR MARKETS.



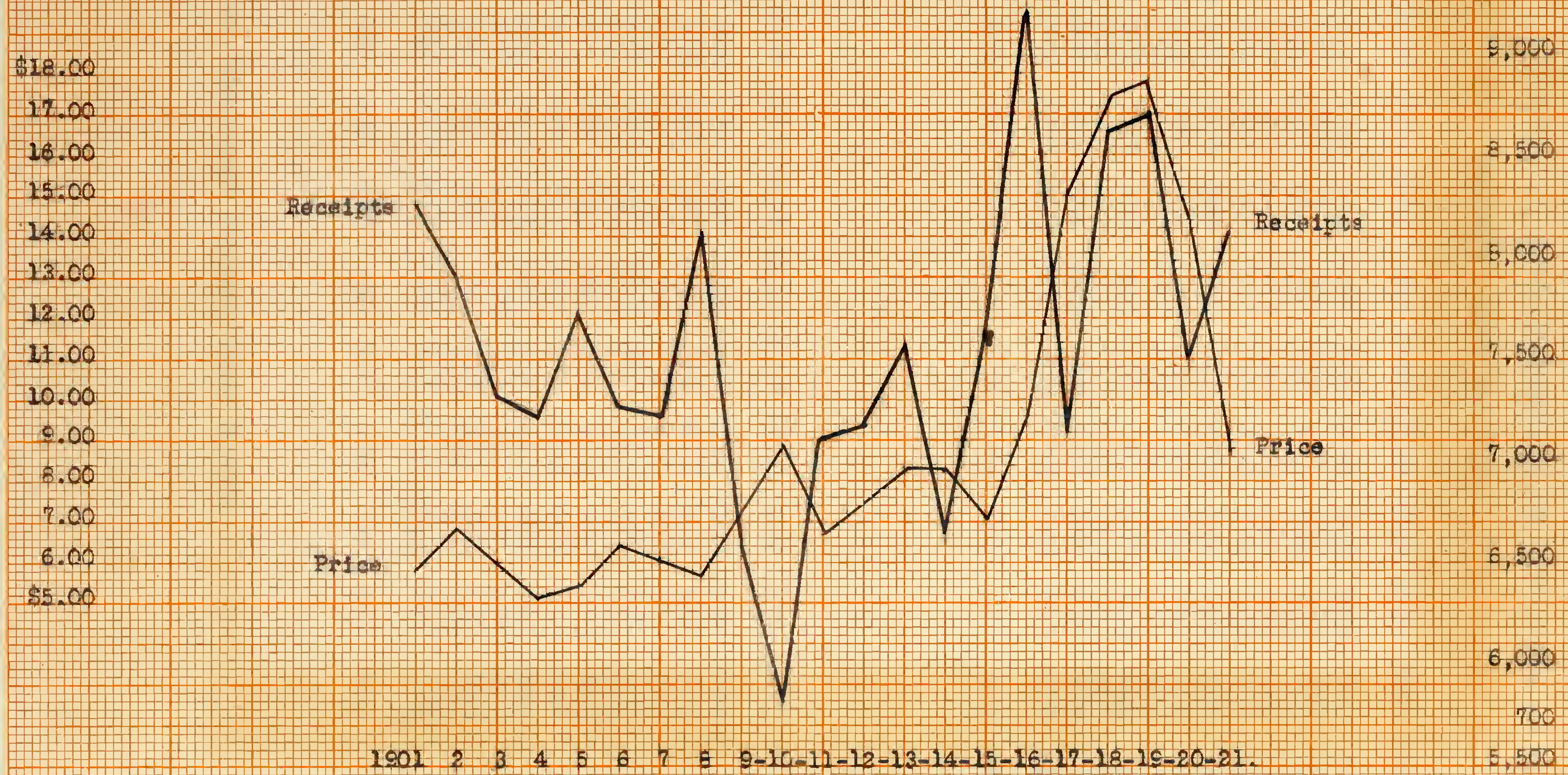
(Taken from the Market Reporter of February 12, 1921)

AVERAGE WEEKLY PRICE AND WEIGHT OF HOGS AT CHICAGO, AND RECEIPTS OF HOGS AT ELEVEN MARKETS, 1901–1921



U. S. Bureau of Markets and Crop Estimates

Average Yearly Hog Prices And Receipts At Chicago For 20 Years.



Legend - Vertical - 10 spaces equal $2.00
Receipts (in thousands) 5 spaces equal 200 hogs.

Data - Drovers Journal p 51 and 18. (1921)

- Factors Which Influence Market Receipts of Hogs.

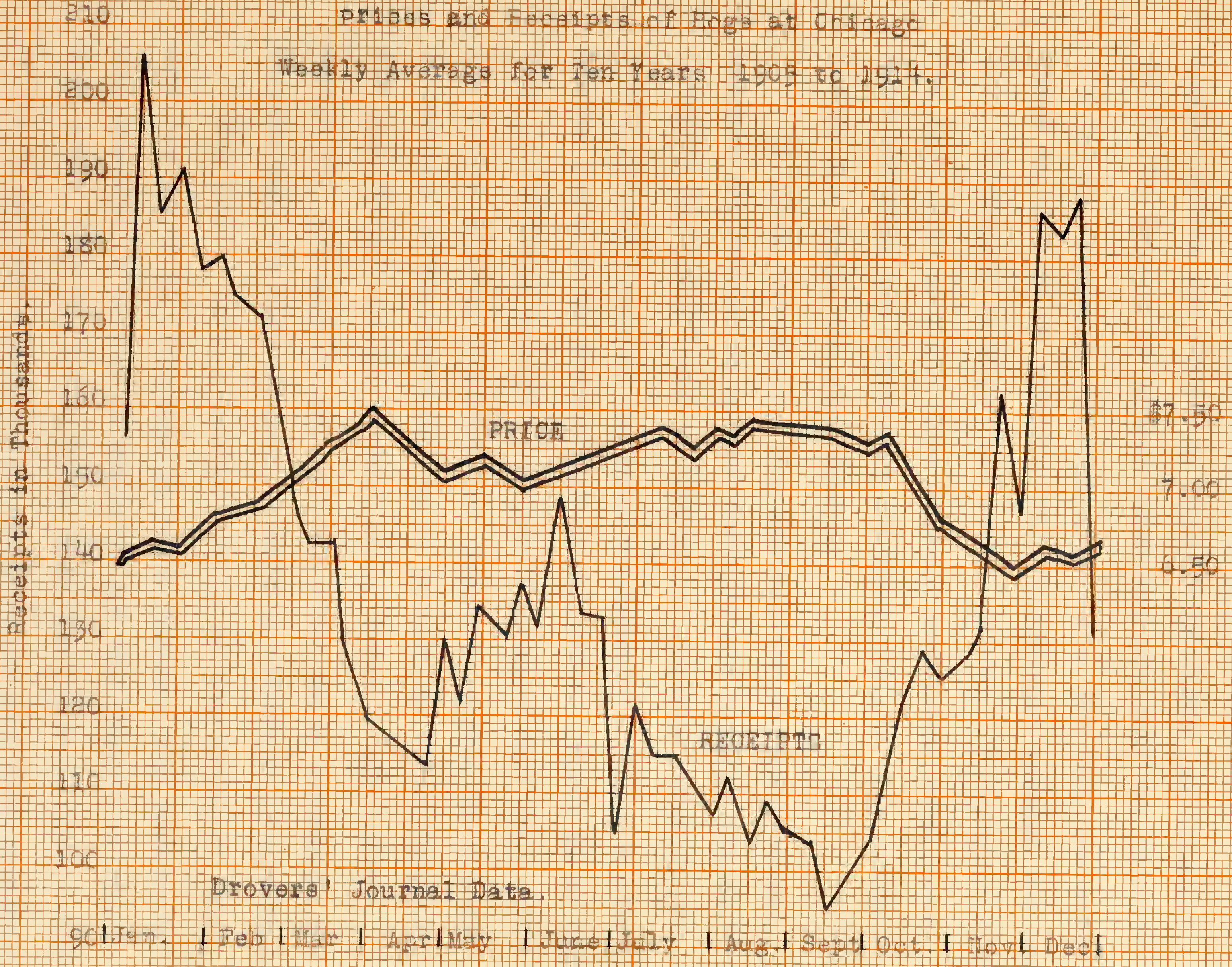
RECEIPTS OF HOGS AT CHICAGO IN THOUSANDS.

Monthly 1903 to 1921.

	1903	1904	1905	1906	1907	1908	1909	1910	1911	1912
Jan.	818	870	930	898	806	1110	818	569	640	881
Feb.	688	846	727	734	681	869	690	574	651	791
Mar.	522	612	677	621	579	723	737	394	702	654
Apr.	527	380	560	503	583	493	482	325	518	567
May.	572	580	653	561	647	604	570	462	635	630
June	677	577	625	624	587	629	518	497	560	543
July	545	350	504	585	611	531	449	390	508	523
Aug.	538	502	489	571	511	469	387	441	485	431
Sep.	465	356	476	454	480	381	353	355	442	404
Oct.	451	477	579	511	442	634	399	424	587	522
Nov.	637	705	704	556	472	816	564	549	693	573
Dec.	885	805	806	656	802	873	643	607	679	661
Yearly: Avg.	609	604	646	606	600	678	552	466	593	598

	1913	1914	1915	1916	1917	1918	1919	1920	1921
Jan.	806	729	896	1228	1124	729	1123	1024	994
Feb.	646	649	740	947	792	917	913	616	816
Mar.	586	543	646	733	628	975	675	642	608
Apr.	534	444	467	542	543	787	640	369	574
May.	549	465	567	612	584	659	704	739	583
June	611	586	564	586	506	513	781	703	705
July	517	460	511	527	474	628	603	584	568
Aug.	565	414	445	587	337	434	384	495	582
Sep.	588	370	412	474	251	398	432	379	494
Oct.	641	521	418	781	436	681	568	432	583
Nov.	641	434	812	1062	698	894	807	673	768
Dec.	889	1002	1175	1128	796	1000	1043	871	875
Yearly: Avg.	631	552	638	766	597	718	727	627	679

Data from "Drovers' Journal Year Book".



Prices and Receipts of Hogs at Chicago

Weekly Average for Ten Years 1905 to 1914.

(Courtesy of Swift & Company)

The Relationship Between Receipts And Prices.

Hog prices vary inversely to hog receipts. Prices are lowest during the season of highest receipts, and highest during the season of lowest receipts; not that the highest and lowest prices of the year come then, but that the average range is highest or lowest. The correlation between the seasons of biggest receipts and lowest prices, is emphasized by the fact that in years when unusual production conditions have reversed the ordinarily seasonal volumes, the range of prices has shown the same change.

As among the months, the correlation is the greatest between the months of lowest receipts and highest prices (usually September) and the months of highest receipts and lowest prices (usually December or January). For the other months there is no discernible correlation. There is no certain correlation between the weekly receipts and corresponding weekly prices; although the tendency is for the prices to decline on big receipts and to advance on small receipts. The same holds true as between daily receipts and prices, except for the greater part of the time, daily receipts, excessive for the time of year, result in declines or advances.

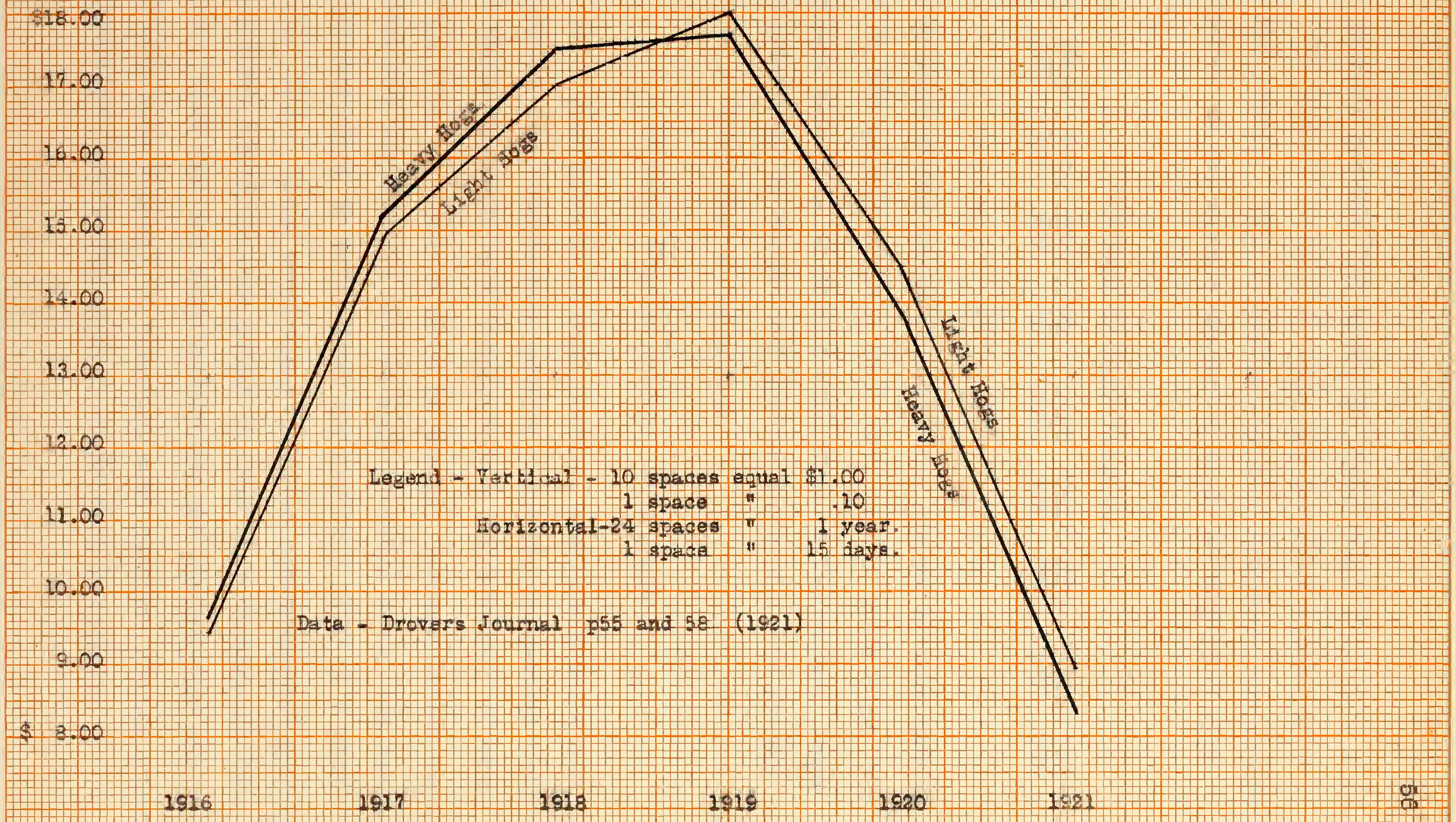
Hog prices have a decided effect on hog receipts, for when the price of live hogs is high, farmers will naturally ship heavily to market in order to get the benefit of the high price. On the other hand, when the price is low, largely due to an over-supply, farmers will refrain from shipping

with the expectation of a better market a little later. One natural and substantial rule for the farmer to follow is to ship his stock when it is ready. If the market is uncertain and the farmer thinks it best to wait, it is suggested that he determine his own time limit for shipping, and then if the price is not quite as he expected, to ship anyway, for not knowing what a future market will bring, rather than overstay his guess, it were better that he take what he can get and be satisfied.

Influence Of Quality And Weight Of Hogs.

The quality of hogs coming to market is determined by sex, age, breed characteristics, weight, and condition. Quality, of course, varies daily and weekly with a corresponding variation in price. During the past year the lighter type of hog, i.e. the light butchers, underweight offerings, and pigs, has sold at a sharp premium over the heavier type, due largely to the heavy eastern shipping demand. Barrows weighing from 190 to 220 pounds usually prove the best market type and realize the highest market price. Choice bacon hogs, especially those for English trade, at this same weight, also realize the best price. Only when lard is selling at a premium, do the lard (heavy type, weighing from 300 to 400 pounds) hogs come to market in greatest numbers and sell at a high price. A great amount of leaf lard is obtained from these heavy hogs; however, the lighter hogs yield as large a percentage of killing and cutting lard as the heavier ones, because

A Comparison Between The Price Of Average Heavy Hogs And
Average Light Hogs From 1916 to 1921.



Legend - Vertical - 10 spaces equal $1.00
1 space " .10
Horizontal-24 spaces " 1 year.
1 space " 15 days.

Data - Drovers Journal p55 and 58 (1921)

the packers convert the backs of these light hogs into lard.

The average weight of hogs for the last eight years was 226 pounds. The following figures represent the monthly variation in the market weight of hogs for the last eight years:

Average Monthly Weights.

Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
214	220	226	229	231	233	239	241	236	220	211	213

Due in part to the heavy fleshing and age of barrows and in part to the number of sows that have weaned their pigs, the heaviest hogs come to market from June to September. Hogs vary regularly in weight and the variation is more in the form of a trend than a variation.

General Transportation Conditions.

As a rule general transportation conditions influence hog prices to a negligible extent; however, at certain critical times they may be of considerable importance. If when the hog crop is ready to move to market, transportation conditions are unfavorable due to lack of stock cars, the farmer is compelled to wait, with the probable loss of a good market. Under these conditions he faces uncertain and poorly distributed receipts; the price of live hogs fluctuates violently. This was the case during the war period when the railroads were engaged in shipping army supplies to the Atlantic seaboard, and a shortage of stock cars prevailed.

IV - PROBABLE SOLUTION TO THE PROBLEM.

Orderly Marketing.

The problem of hog marketing is to move the supply to market within the limitations that are inherent in the conditions of production, so that it can be most efficiently utilized by the industries that distribute the products. The nearer the swine industry can regulate its supply of hogs to meet the requirements of the packing industry, the more certain it will be of securing the maximum long-time returns. The more the packing industry is compelled to accomodate itself to the irregularities of production and marketing, the more the speculative profits will be extracted, with consequent less satisfaction and profit to producers. The whole situation should be considered in the broad light of determining the cheapest and most efficient way of getting the supply of hogs into the consumptive channels.

The orderly marketing of hogs must concern itself with the short-time, i.e. daily and weekly, and long-time, i.e. monthly and seasonal movements. As previously indicated, the long-time movements are largely determined by the conditions of production, the corn supply, and the price situation. The first prerequisite of orderly marketing is to determine the number of hogs in the country to move to market. This is a very difficult task to accomplish for so many of the following considerations are so difficult to determine: the census figures of the hog crop moving to market must

first be secured and then used immediately; the size and condition of the corn crop in relation to the number of hogs in the different producing regions must be determined; the price relation between corn and hogs is important; agricultural financial conditions have an important bearing: the number of cattle going on feed will affect hog marketing; the temper of the producers influences production; and the prevalence of disease may decrease market receipts.

Working on the assumption that price varies inversely to receipts, if we could regulate the daily supply of hogs coming to market, we would probably make a great step in reducing daily price fluctuations to a minimum. Reducing these daily and weekly price fluctuations to a minimum would consequently reduce monthly and seasonal fluctuations to a minimum and if hog prices were favorably constant, both farmer and packer could operate to the satisfaction that he would be remunerated for cost of production (in the case of the packer - the cost of processing and distributing) plus a just rate of profit.

Regulating receipts by revising some of our methods of production and creating a five-day market, will help to minimize daily and weekly price fluctuations. For the purpose of stabilizing prices, during the war the zoning system was instituted. This system divided the heavy producing regions into zones, which zones shipped regulated supplies of live stock to market only on certain days of the week. This system was instituted during an abnormal period; however, it had

many advantages inasmuch as, it created a five-day market and regulated receipts, stabilized values, overcame congestion, reduced delays and shrinkages, increased the efficiency of the commission men, the packing houses used fewer men and gave steadier employment, packer and eastern order buyers could expect evenly balanced supplies, and it used the railroad's rolling stock most efficiently. This system, however, had two disadvantages in that, individual shippers could not ship when they pleased, and prices were somewhat unstable. As far as stabilizing price is concerned, the question arises, "How unstable would prices have been if the supply had not been regulated?" This, of course, we do not know, but are of the opinion that prices would have fluctuated much more than they really did.

Complete Organization.

Orderly marketing will be secured only by complete and powerful organization, and to be successful the organization must benefit both seller and buyer. The organization that will benefit all men concerned, instead of a few selected individuals, will undoubtedly survive. The marketing situation in each large producing region should be studied separately, with the aim of determining the best present market outlets and possible additional ones that might be opened.

In order that the various markets of the country may receive their correct quota of the hog crop, i.e. that no one or two markets be glutted, but that there be a uniform

and even distribution of the total supply of hogs - hogs may be concentrated* at the strategic shipping points, there graded into straight carloads, and the various grades sent to markets where the demand for them proved most urgent.

Limiting The Supply Of Hogs For Sale.

Limiting the number of hogs that can be offered for sale on any day's market, is one of the most promising suggestions that has been given on the subject of orderly marketing. This would necessitate an agreement among the different interests at the yards, which agreement would, of course, be difficult to secure. This limiting the number of hogs offered for sale on the daily market would eliminate in part the necessity of speculators and traders to carry over the surplus which would go over in first hands; salesmen would know that only a certain number of hogs would be available, and would not become excited in the face of excessive runs; buyers would know that they would have to fill their orders out of a limited number; the market offerings of the different days of the week would be better equalized; and there would be no chance of favoritism in the decision as to whose hogs should be carried over, and no selling agency would be subject to criticism from customers whose hogs were thus carried over. If at anytime an agreement could be reached between the selling forces and the packers, which would limit the amount of any day's advance or decline, the present unsatisfactory situation would be greatly improved.

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* This plan of concentrating hogs at strategic shipping points is questionable because hogs are so susceptable to disease.

If these present fluctuations had the effect of rewarding greater efficiency in production, or more intelligence or energy in marketing, or of covering greater costs of production, then an attempt to do away with them would not be justified, but they do not answer any such purpose. So, from the producer's point of view the result to be hoped for from a better distribution of market receipts is the reduction of the present short-time fluctuations to the minimum and the maintenance of a fairly stable price level.

V - CONCLUSIONS.

(1) Demand and supply are the controlling forces of price determination and fluctuations. Variations in Demand and Supply in turn are caused by a combination of many factors which are fairly easily determined but somewhat difficult to control. New combinations of factors are ever arising and causing decided fluctuations in price.

(2) Large storage stocks tend to satiate demand, reduce the demand for live hogs, and lower price.

(3) The current value and price of hogs is largely determined by what the packer (who always takes future value into consideration) can realize for fresh and cured pork products at that particular time. The price of fresh and cured pork products is determined by what the public will pay for them. The value of the heavy type hog is determined by the quantity and price of lard. The supply, quality, and price of lard are important factors in determining the course of the hog

market. The value of the light type hog is determined by the value of fresh and cured pork products. Probable future value and price will be determined by the conditions of supply, current domestic consumption, storage, and export trade.

(4) The public demands the choice cuts - hams, bacon, and loins, which compose 34% of the carcass - of the hog carcass, because they are much more palatible and more easily prepared for use than the cheaper cuts. The supply of choice cuts, however, is limited in comparison to the demand, so the public pays a high price for them. The high cost of retailing is a decided factor in causing high-priced meats.

(5) Flourishing industrial and financial conditions increase the demand for meat, which in turn increases price.

(6) Religious holidays decrease meat consumption, but to just what extent is difficult to determine.

(7) The demand for meat is greater in colder than in warmer seasons.

(8) The supply and price of other meats affects the price of pork products. The price of all classes of meats rises and falls, more or less, together.

(9) Storage tends to stabilize price, for it takes a commodity in the time of plenty, stores it, and regulates its flow into consumption.

(10) The United States exports from 10% to 15% of its total pork production and this small surplus proves an important price-determining factor, for it is a fundamental commercial axiom that the domestic price of any stapel commodity is

largely governed by what that surplus will bring abroad.

(11) Free and unlimited competition in the production of any commodity reduces to the minimum the seller's chance of securing more than a reasonable profit over average cost of production. Free competition is a valuable market asset.

(12) Speculators at times preform a stabilizing influence on the market by taking out of immediate slaughtering channels an unusual surplus.

(13) A successful corn crop usually insures a successful hog crop. The rise and fall of the price of corn is consistent with the rise and fall of the supply. When corn is plentiful, cheap in price, and of high feeding value, hogs will be fed heavily and will move to market late, receipts will be heavy, and if there is not a corresponding increase in demand, price will be low. On the other hand, if the corn crop is short, corn is high priced and of low feeding value, the farmer will feed most economically, hogs will move to market early, receipts will be light and price will be steady to high.

(14) Weather conditions directly determine the success of the corn crop, indirectly determine the success of the hog crop, and indirectly determine the price of hogs.

(15) While disease is probably a negligible factor in price fluctuations, it is, however, largely responsible for a higher level of prices than would otherwise be obtained.

(16) The conditions of production determine the time for marketing hogs, and has much to do with fluctuating hog prices.

When hog receipts are heavy, and if there is not a corresponding increase in demand, price will be low. On the other hand, when receipts are light, demand will be strong and price will be high. Price varies inversely to receipts. Hog receipts are heaviest during December and January and price at this time is lowest; receipts are lightest during April and September and price at this time is highest. If fall comes early, receipts will be heavy in October and November; if fall comes late, receipts will be heavy in January.

(17) High hog prices will stimulate production; increased production will produce heavy receipts and a low price. Low hog prices discourage production, decreases receipts, and a high price results.

(18) The quality of hogs coming to market varies daily and weekly with a corresponding variation in price. The light type of hogs weighing from 190 to 220 pounds usually realizes the best market price.

(19) Thriving financial conditions encourage hog production, increases receipts, and lowers price; depressing financial conditions discourage hog production, decreases receipts and raises price.

(20) In general, transportation conditions are a negligible factor in price fluctuations.

(21) It is practically impossible to secure a stable price level. There are, however, possibilities in reducing short-time price fluctuations to the minimum by means of revised methods of production and the establishment of orderly

marketing. Uniform daily receipts will probably cause less daily and weekly price fluctuations, which in turn will result in a fairly stable seasonal price level.

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